1	QUINN EMANUEL URQUHART & SULLIVA	N, LLP
	Alex Spiro (appearing pro hac vice)	
2	alexspiro@quinnemanuel.com	
3	Andrew J. Rossman (appearing pro hac vice)	
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ا ہ	ellydethompson@quinnemanuel.com	
5	Jesse Bernstein (appearing pro hac vice)	
6	jessebernstein@quinnemanuel.com	
	51 Madison Avenue, 22nd Floor	
7	New York, New York 10010	
	Telephone: (212) 849-7000	
8	Michael T. Lifrak (Bar No. 210846)	
9	michaellifrak@quinnemanuel.com	
	Anthony P. Alden (Bar No. 232220)	
0	anthonyalden@quinnemanuel.com	
	Kyle Batter (Bar No. 301803)	
11	kylebatter@quinnemanuel.com	
2	865 South Figueroa Street, 10th Floor	
_	Los Angeles, California 90017-2543	
3	Telephone: (213) 443-3000	
4	Attorneys for Defendants Tesla, Inc., Elon Musk,	
5	Brad W. Buss, Robyn Denholm, Ira Ehrenpreis,	
	Antonio J. Gracias, James Murdoch, Kimbal Mu	sk,
6	and Linda Johnson Rice	
_	1 N WEED 2 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DAGED AGE GOALD III
7	UNITED STATES	DISTRICT COURT
8	NORTHERN DISTRI	ICT OF CALIFORNIA
9	IN RE TESLA, INC. SECURITIES	Case No. 3:18-cv-04865-EMC
,,	LITIGATION	
20		DECLARATION OF ANTHONY P.
$_{21}$		ALDEN IN SUPPORT OF DEFENDANTS'
		EMERGENCY MOTION TO COMPEL A
22		LIMITED SUPPLEMENTAL
,,		DEPOSITION OF DR. MICHAEL L.
23		HARTZMARK
24		D. (TDD
٠		Date: TBD
25		Time: TBD
		Location: Courtroom 5, 17th Floor
26		Judge: Hon. Edward Chen
27		
28		
- 1	I .	

ALDEN DECLARATION IN SUPPORT OF DEFENDANTS' EMERGENCY MOTION TO COMPEL

Case No. 3:18-cv-04865-EMC

1 **DECLARATION OF ANTHONY P. ALDEN** 2 I, Anthony P. Alden, declare as follows: 3 1. I am a partner at the law firm Quinn Emanuel Urquhart & Sullivan, LLP, counsel for Defendants in this action. I make this declaration in support of Defendants' Emergency Motion to 4 5 Compel a Limited Supplemental Deposition of Dr. Michael L. Hartzmark. I know the facts stated 6 herein of my own personal knowledge, and if called as a witness, I could and would testify 7 competently thereto. 8 2. Attached hereto as **Exhibit A** is a true and correct copy of a December 27, 2022 9 through January 2, 2023 email chain between Plaintiff's counsel and myself, on behalf of Defendants. 3. 10 Attached hereto as **Exhibit B** is a true and correct copy of the Second Supplemental Expert Report of Steven L. Heston, Ph.D., dated December 27, 2022. 11 12 4. Attached hereto as **Exhibit C** is a true and correct copy of the Supplemental Expert 13 Damages Report of Michael L. Hartzmark, Ph.D., dated December 31, 2022. 5. 14 Attached hereto as **Exhibit D** is a true and correct copy of the rough deposition 15 transcript from the January 3, 2023 deposition of Professor Heston. 16 6. Appendix 8 to the initial expert report of Dr. Michael Hartzmark, entitled "Calculation 17 of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, 18 \$420, \$460, and \$500)," contained Dr. Hartzmark's prior calculations of options damages. 19 20 I declare under penalty of perjury of the laws of the State of California that the foregoing is 21 true and correct. 22 23 Executed this 3rd day of January, 2023 in Los Angeles, California. 24 25 <u>/s/ Anthony Ald</u>en 26 Anthony Alden

27

28

Exhibit A

Kyle Batter

From: Nicholas I. Porritt < nporritt@zlk.com>
Sent: Monday, January 2, 2023 11:37 AM

To: Anthony Alden anthonyalden@quinnemanuel.com

Cc: Alexander Krot <<u>akrot@zlk.com</u>>; Michael Lifrak <<u>michaellifrak@quinnemanuel.com</u>>; Adam M Apton

<aapton@zlk.com>; Elizabeth K Tripodi <etripodi@zlk.com>; Adam C McCall <amccall@zlk.com>; Maxwell Weiss

<mweiss@zlk.com>; Kathy Ames Valdivieso <kavaldivieso@zlk.com>; Kayla Fleming

< kaylafleming@quinnemanuel.com >; Andrew J. Rossman < andrewrossman@quinnemanuel.com >; Jesse Bernstein

<jessebernstein@quinnemanuel.com>

Subject: RE: [External]RE: [Ex

Inc. Securities Litigation

[EXTERNAL EMAIL from nporritt@zlk.com]

Anthony:

Also in the interest of avoiding a dispute, we are willing to make Professor Heston available tomorrow at 3pm Eastern time. I have managed to clear my conflict.

At this time, we are not agreeable to an additional video deposition by Dr. Hartzmark. We think that request was covered by the Court's order dated December 22, 2022.

Sincerely,

Nicholas Porritt
Partner
LEVI&KORSINSKYLLP

55 Broadway, 10th Floor New York, NY 10006 Tel.: (212) 363-7500 Fax: (212) 363-7171

nporritt@zlk.com | www.zlk.com

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From: Anthony Alden <anthonyalden@quinnemanuel.com>

Sent: Monday, January 2, 2023 1:14 PM **To:** Nicholas I. Porritt nporritt@zlk.com

Cc: Alexander Krot down-right: Adam of the

Case 3:18-cv-04865-EMC Document 527-1 Filed 01/03/23 Page 5 of 62

< kaylafleming@quinnemanuel.com >; Andrew J. Rossman < andrewrossman@quinnemanuel.com >; Jesse Bernstein < jessebernstein@quinnemanuel.com >

Subject: [External]RE: [External]RE: [External]RE: [External]RE: [External]RE: [External]RE: [External]RE: In re Tesla, Inc. Securities Litigation

Nick: having consulted with our experts, and to avoid a dispute, we could be in a position to take Professor Heston's deposition tomorrow afternoon or Wednesday. I assume this still doesn't work for your side, but please let me know by noon pacific.

Please also let us know if Plaintiff will agree to a one-hour video deposition of Dr. Hartzmark concerning his supplemental report served Saturday.

Thanks,

Anthony P. Alden | Partner | Quinn Emanuel Urquhart & Sullivan, LLP

865 S. Figueroa St 10th Floor Los Angeles, Ca 90017 213-443-3159 Direct 213.443.3000 Main Office Number 213.443.3100 FAX anthonyalden@quinnemanuel.com www.quinnemanuel.com

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From: Anthony Alden

Sent: Saturday, December 31, 2022 4:34 PM **To:** Nicholas I. Porritt <nporritt@zlk.com>

Cc: Alexander Krot "> Michael Lifrak <michaellifrak@quinnemanuel.com">"> Adam M Apton

- <aapton@zlk.com>; Elizabeth K Tripodi <etripodi@zlk.com>; Adam C McCall <amccall@zlk.com>; Maxwell Weiss
- <mweiss@zlk.com>; Kathy Ames Valdivieso <kavaldivieso@zlk.com>; Kayla Fleming
- <<u>kaylafleming@quinnemanuel.com</u>>; Andrew J. Rossman <<u>andrewrossman@quinnemanuel.com</u>>; Jesse Bernstein

<jessebernstein@quinnemanuel.com>

Subject: Re: [External]Re: [External]RE: [External]RE: [External]RE: [External]RE: In re Tesla, Inc. Securities Litigation

You've made your position clear. We disagree and will explain to the Court what we see as pretty obvious gamesmanship and an attempt to shield Professor Heston. I see no further point in litigating the issue by email.

On Dec 31, 2022, at 4:15 PM, Nicholas I. Porritt <nporritt@zlk.com> wrote:

[EXTERNAL EMAIL from nporritt@zlk.com]

Case 3:18-cv-04865-EMC Document 527-1 Filed 01/03/23 Page 6 of 62

We do not see any need for an extension or a motion. We regard this entire supplementary expert discovery as an unnecessary distraction less than 3 weeks before trial. The revisions to appendix 8 and the use of actual transacted prices to calculate damages (which, you should remember, was Defendants' proposal which we agreed to) are largely self-explanatory. We do not see why this process should be dragged out any longer.

From: Anthony Alden <anthonyalden@guinnemanuel.com>

Date: Saturday, December 31, 2022 at 7:10 PM

To: Nicholas I. Porritt <nporritt@zlk.com>

Cc: Alexander Krot akrot@zlk.com">akrot@zlk.com, Michael Lifrak michaellifrak@quinnemanuel.com, Adam M Apton aapton@zlk.com, Elizabeth K Tripodi etripodi@zlk.com, Adam C McCall

<amccall@zlk.com>, Maxwell Weiss <mweiss@zlk.com>, Kathy Ames Valdivieso

< kaylafleming@quinnemanuel.com >, Andrew J.

Rossman <andrewrossman@quinnemanuel.com >, Jesse Bernstein

<jessebernstein@quinnemanuel.com>

Subject: [External]Re: [External]RE: [External]RE: [External]RE: [External]RE: [External]RE: In re Tesla, Inc. Securities Litigation

Nick: if you are going to insist we file a motion over a two-day extension to the current deadline then that's what we'll do.

Best, Anthony

On Dec 31, 2022, at 4:01 PM, Nicholas I. Porritt <nporritt@zlk.com> wrote:

[EXTERNAL EMAIL from nporritt@zlk.com]

Anthony:

The supplemental report is less than two pages long and has not been prepared by Professor Heston. The appendix is substantially the same as the prior appendix 8 which was produced over a year ago and about which Dr. Hartzmark has been examined at length as well as Professor Heston even though he did not prepare the original Appendix 8 or this revised version. There is no reason to delay Professor Heston's deposition. He is available at 3pm Eastern on Monday January 2 as agreed and in accordance with the Court's order.

I hope you and your team have a good holiday.

Nicholas Porritt
Partner
LEVI&KORSINSKYLLP
55 Broadway, 10th Floor
New York, NY 10006
T. 212.363.7500
F. 212.363.7171

nporritt@zlk.com | www.zlk.com

--

From: Anthony Alden <anthonyalden@quinnemanuel.com>

Date: Saturday, December 31, 2022 at 6:23 PM

To: Nicholas I. Porritt <nporritt@zlk.com>, Alexander Krot <akrot@zlk.com>,

Michael Lifrak <michaellifrak@quinnemanuel.com>

Cc: Adam M Apton <<u>aapton@zlk.com</u>>, Elizabeth K Tripodi <<u>etripodi@zlk.com</u>>, Adam C McCall <amccall@zlk.com>, Maxwell Weiss <mweiss@zlk.com>, Kathy

Ames Valdivieso < kavaldivieso@zlk.com >, Kayla Fleming

< kaylafleming@quinnemanuel.com >, Andrew J. Rossman

<andrewrossman@quinnemanuel.com>, Jesse Bernstein

<jessebernstein@quinnemanuel.com>

Subject: [External]RE: [External]RE: [External]RE: [External]RE: [In re

Tesla, Inc. Securities Litigation

Nick: it is a holiday weekend and our experts are going to need some time to analyze this. Assuming the supporting data comes over today, please confirm that Professor Heston is available to sit for his one-hour deposition on Friday, January 6, and that plaintiff will stipulate to this short extension.

Anthony P. Alden | Partner | Quinn Emanuel Urquhart & Sullivan, LLP

865 S. Figueroa St 10th Floor Los Angeles, Ca 90017 213-443-3159 Direct 213.443.3000 Main Office Number 213.443.3100 FAX anthonyalden@quinnemanuel.com www.quinnemanuel.com

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From: Nicholas I. Porritt < nporritt@zlk.com>
Sent: Saturday, December 31, 2022 3:01 PM

To: Anthony Alden <anthonyalden@quinnemanuel.com>; Alexander Krot <akrot@zlk.com>; Michael Lifrak <michaellifrak@quinnemanuel.com>

Cc: Adam M Apton ; Elizabeth K Tripodi ; Adam C McCall ; Maxwell Weiss ; Kathy Ames Valdivieso kaylafleming@quinnemanuel.com

Subject: Re: [External]RE: [External]RE: [External]RE: [External]RE: In re Tesla, Inc.

Securities Litigation

Anthony:

Please find attached a supplemental report from Dr. Hartzmark attaching a revised Appendix 8 from his report. We will send over the supporting data shortly (it requires someone with higher technological skills than me).

Nicholas Porritt
Partner
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55 Broadway, 10th Floor
New York, NY 10006
T. 212.363.7500
F. 212.363.7171
nporritt@zlk.com | www.zlk.com

From: Anthony Alden <anthonyalden@quinnemanuel.com>

Date: Friday, December 30, 2022 at 5:56 PM

To: Nicholas I. Porritt < nporritt@zlk.com >, Alexander Krot < akrot@zlk.com >,

Michael Lifrak <michaellifrak@guinnemanuel.com>

Cc: Adam M Apton aapton@zlk.com, Elizabeth K Tripodi etripodi@zlk.com, Adam C McCall amccall@zlk.com, Maxwell Weiss mweiss@zlk.com, Kathy Ames Valdivieso kavaldivieso@zlk.com, Kayla Fleming

<kaylafleming@quinnemanuel.com>

Subject: [External]RE: [External]RE: [External]RE: In re Tesla, Inc. Securities Litigation

Nick: we are surprised to say the least that, despite plaintiff's explicit representations to the Court and the Court's prior orders, plaintiff is now taking the position that it does not intend to actually run and serve revised calculations. We reserve all rights in this regard. As for the immediate issue of Professor Heston's deposition, however, we are entitled to use revised Appendix 8 at his supplemental deposition, just as we did at his prior deposition. While we do not know precisely what will be in revised Appendix 8, the original Appendix 8 purported to implement Professor Heston's original methodology. Accordingly, we ask you again whether plaintiff will stipulate to the relief described in my email of this morning. Assuming plaintiff serves revised Appendix 8 on Monday, and it comports with your description, we can probably be in a position to depose Professor Heston on Thursday or Friday of next week, and file any request for leave to file a Daubert within two business days thereafter. Please let us know this afternoon or we will have no alternative but to seek emergency relief from the Court.

Thanks, Anthony

Anthony P. Alden | Partner | Quinn Emanuel Urquhart & Sullivan, LLP

Case 3:18-cv-04865-EMC Document 527-1 Filed 01/03/23 Page 9 of 62

Los Angeles, Ca 90017 213-443-3159 Direct 213.443.3000 Main Office Number 213.443.3100 FAX anthonyalden@quinnemanuel.com www.quinnemanuel.com

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From: Nicholas I. Porritt < nporritt@zlk.com Sent: Friday, December 30, 2022 12:08 PM

To: Anthony Alden anthonyalden@quinnemanuel.com; Alexander Krot akrot@zlk.com; Michael Lifrak michaellifrak@quinnemanuel.com

Cc: Adam M Apton ; Elizabeth K Tripodi ; Adam C McCall ; Maxwell Weiss ; Kathy Ames Valdivieso">; Kathy Ames Valdivieso

kaylafleming@quinnemanuel.com

Subject: RE: [External]RE: [External]RE: [External]RE: In re Tesla, Inc. Securities Litigation

[EXTERNAL EMAIL from nporritt@zlk.com]

Anthony:

I assume this email relates to a revised Appendix 8 to Dr. Hartzmark's report. Just to be clear, Plaintiff is voluntarily providing you this information as it is plainly not required under the Court's December 22, 2022 order. Also, it has no impact on Professor Heston's deposition because, as Professor Heston made clear at his prior deposition, he is not responsible for Appendix 8.

Further, Defendants seem fundamentally confused about the impact of the Court's pretrial order on option damages. Under the Court's order, the but-for option prices (calculated using the but-for stock prices and but-for volatilities determined by the jury at trial) will be subtracted from the actual transacted prices (shown in public reported data already produced to Defendants) to generate an amount of inflation or deflation. This arithmetic exercise will be undertaken post-trial. There is already an example of this arithmetic contained in Professor Heston's supplemental report and revised Appendix 8 will contain additional examples but the exercise is mechanical and can easily be performed for all option series based on information already in Defendants' possession. We assumed you wanted the revised Appendix 8 "sponsored" (to use you words) by Dr. Hartzmark and that is what we are currently doing.

Sincerely,

Nicholas Porritt Partner

LEVI&KORSINSKYLLP

55 Broadway, 10th Floor New York, NY 10006

Tel.: (212) 363-7500 Fax: (212) 363-7171

nporritt@zlk.com | www.zlk.com

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From: Anthony Alden <anthonyalden@guinnemanuel.com>

Sent: Friday, December 30, 2022 1:01 PM

To: Nicholas I. Porritt < nporritt@zlk.com; Alexander Krot < akrot@zlk.com; Michael

Lifrak <michaellifrak@quinnemanuel.com>

Cc: Adam M Apton ; Elizabeth K Tripodi ; Adam C McCall ; Maxwell Weiss ; Kathy Ames Valdivieso kaylafleming@quinnemanuel.com

Subject: [External]RE: [External]RE: [External]RE: In re Tesla, Inc. Securities Litigation

Nick: I am following up on my prior emails. It is now over two months since plaintiff represented to the Court that he could run revised options damages calculations using actual transacted prices, almost a month since the Final Pretrial Order whereby the Court permitted plaintiff to do so, three days since the Court's deadline to serve the calculations, and the Friday before a holiday weekend and Professor Heston's scheduled deposition on Monday, and we still do not have the revised calculations or even a date certain by when they will be served. We thus intend to file today an emergency motion with the Court ordering plaintiff to serve the revised calculations by Monday, January 2, that Professor Heston be made available for his one hour deposition on Monday, January 9, and that Defendants file any request for leave to serve a *Daubert* motion on Professor Heston's new methodology and the revised calculations by January 11. Please advise by **noon PT today** whether plaintiff will stipulate to this relief or we will proceed to file our motion.

Thanks, Anthony

Anthony P. Alden | Partner | Quinn Emanuel Urquhart & Sullivan, LLP

865 S. Figueroa St 10th Floor
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213.443.3000 Main Office Number
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From: Anthony Alden

Sent: Thursday, December 29, 2022 10:27 AM

To: Nicholas I. Porritt < nporritt@zlk.com >; Alexander Krot < akrot@zlk.com >; Michael

Lifrak <michaellifrak@quinnemanuel.com>

Cc: Adam M Apton ; Elizabeth K Tripodi ; Adam C McCall ; Maxwell Weiss ; Kathy Ames Valdiviesokavaldivieso@zlk.com; Kathy Ames Valdiviesokavaldivieso@zlk.com; Kathy Ames Valdivieso

Subject: RE: [External]RE: [External]RE: In re Tesla, Inc. Securities Litigation

Nick: Regarding #2 below, please identify in Professor Heston's or Dr. Hartzmark's reports (a) the calculations upon which a graph showing "the transaction prices across strike prices for the same expiry to create a curve of actual transacted prices for Tesla options" would be based; and (b) the calculations of actual implied volatility for Tesla stock options "from [their] actual transacted price using the BSM model."

Regarding #3, we will have to disagree, but you still haven't answered my question: when will we receive revised Appendix 8?

Best,

Anthony P. Alden | Partner | Quinn Emanuel Urguhart & Sullivan, LLP

865 S. Figueroa St 10th Floor Los Angeles, Ca 90017 213-443-3159 Direct 213.443.3000 Main Office Number 213.443.3100 FAX anthonyalden@quinnemanuel.com www.quinnemanuel.com

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From: Nicholas I. Porritt < nporritt@zlk.com > Sent: Thursday, December 29, 2022 10:16 AM

To: Anthony Alden <anthonyalden@quinnemanuel.com>; Alexander Krot <akrot@zlk.com>; Michael Lifrak <michaellifrak@quinnemanuel.com>

Cc: Adam M Apton ; Elizabeth K Tripodi ; Adam C McCall ; Maxwell Weiss ; Kathy Ames Valdiviesokavaldivieso@zlk.com

Subject: Re: [External]RE: [External]RE: In re Tesla, Inc. Securities Litigation

[EXTERNAL EMAIL from nporritt@zlk.com]

Anthony:

I think my responses were straightforward as well.

- 1. "Dr. Hartzmark's opinion regarding the calculation of the but-for option prices and the appropriate inputs of implied volatility and underlying Tesla stock price has not changed." I believe that is unambiguous.
- 2. Presenting previously disclosed data or calculations on a graph (assuming it is accurately presented) is entirely appropriate. CBOE data regarding Telsa stock options is (a) publicly available and (b) disclosed anyway over a year ago.
- 3. The Court's December 22, 2022 order was expressly limited to calculations performed by Professor Heston which was part of the relief sought in your overbroad motion for emergency discovery. We have complied with that order. Appendix 8 was not prepared by Professor Heston and, therefore, is not covered by the order. To the extent your motion sought a revised Appendix 8, that part of your motion was denied by the Court. Nevertheless, we are voluntarily offering to update it and provide you with a revised version.

Sincerely,

Nick

Nicholas Porritt
Partner
LEVI&KORSINSKYLLP
55 Broadway, 10th Floor
New York, NY 10006
T. 212.363.7500
F. 212.363.7171
nporritt@zlk.com | www.zlk.com

From: Anthony Alden <anthonyalden@guinnemanuel.com>

Date: Wednesday, December 28, 2022 at 9:46 PM

To: Nicholas I. Porritt < nporritt@zlk.com >, Alexander Krot < akrot@zlk.com >, Michael Lifrak < michaellifrak@quinnemanuel.com >

Cc: Adam M Apton aapton@zlk.com, Elizabeth K Tripodi etripodi@zlk.com, Adam C McCall amccall@zlk.com, Maxwell Weiss mweiss@zlk.com, Kathy Ames Valdivieso kavaldivieso@zlk.com)

Subject: [External]RE: [External]RE: In re Tesla, Inc. Securities Litigation

Nick: please see my responses below. My questions were straightforward. If you cannot answer them in a straightforward manner via email, I suggest we get on the phone. I am available tonight and after noon ET tomorrow.

Case 3:18-cv-04865-EMC Document 527-1 Filed 01/03/23 Page 13 of 62

- 1. I take it from your email that Dr. Hartzmark will present the same but-for implied volatilities to the jury as contained in Appendix 8 of his November 10, 2021 report. If that is not the case, please let me know by tomorrow morning.
- 2. While plaintiff can reserve the right to present graphical representations, if they rely on work by an expert, they must be disclosed. Despite footnote 102 in Professor Heston's Second Supplemental Report, I take it from your email that neither Professor Heston nor Dr. Hartzmark will be graphing "the transaction prices across strike prices for the same expiry to create a curve of actual transacted prices for Tesla options" or calculating the "actual implied volatility for any stock option . . . from its actual transacted price using the BSM model." This is because no such graph or calculations have been disclosed. If that is not the case, please let me know by tomorrow morning.
- 3. The Order Granting In Part Defendants' Emergency Motion to Compel Supplemental Expert Reports and Depositions ordered plaintiff to serve updated calculations using actual transacted prices. Plaintiff has still not done so. When will plaintiff produce a revised Appendix 8? We reserve the right to re-schedule Professor Heston's deposition and move for other appropriate relief given plaintiff's failure to abide by the Order.

Thanks, Anthony

Anthony P. Alden | Partner | Quinn Emanuel Urguhart & Sullivan, LLP

865 S. Figueroa St 10th Floor Los Angeles, Ca 90017 213-443-3159 Direct 213.443.3000 Main Office Number 213.443.3100 FAX anthonyalden@quinnemanuel.com www.guinnemanuel.com

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From: Nicholas I. Porritt <nporritt@zlk.com> Sent: Wednesday, December 28, 2022 3:57 PM

To: Anthony Alden <anthonyalden@guinnemanuel.com>; Alexander Krot <akrot@zlk.com>; Michael Lifrak <michaellifrak@guinnemanuel.com>

Cc: Adam M Apton <aapton@zlk.com>; Elizabeth K Tripodi <etripodi@zlk.com>; Adam C McCall <amccall@zlk.com>; Maxwell Weiss <mweiss@zlk.com>; Kathy Ames Valdivieso <kavaldivieso@zlk.com>

Subject: Re: [External]RE: In re Tesla, Inc. Securities Litigation

[EXTERNAL EMAIL from nporritt@zlk.com]

Anthony:

- We are unsure what you mean by Dr. Hartzmark's "use" of the same but-for implied volatilities. Dr. Hartzmark's opinion regarding the calculation of the butfor option prices and the appropriate inputs of implied volatility and underlying Tesla stock price has not changed. In calculating damages, the but-for stock price and implied volatilities as found by the jury will be used which may or may not correspond to the stock prices and implied volatilities proposed by Dr. Hartzmark.
- 2. The actual transaction prices for Tesla stock options and the implied volatilities derived from them are publicly available data that has previously been provided to Defendants with our experts' initial reports. For instance, the implied volatilities derived from the option quotes/prices are contained in the CBOE data previously produced to Defendants. We reserve the right to present graphical representations of publicly available data just as we reserve the right to present a graph, for instance, of Tesla's historical stock prices.
- 3. We do not see any reference to an updated Appendix 8 from Dr. Hartzmark's report in the Court's December 22, 2022 order. We previously offered to provide an updated version of Appendix 8 but that proposal was superseded by Defendants' much broader motion for emergency discovery and the Court's subsequent order. As an accommodation and to avoid further motion practice, we are prepared to prepare and produce a revised Appendix 8 using actual transacted prices rather than fitted actual prices. The but-for prices will remain the same as set forth in point 1 above. We will make the revised Appendix 8 available as soon as it is completed and reviewed.

Sincerely,

Nick

Nicholas Porritt
Partner
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From: Anthony Alden <anthonyalden@guinnemanuel.com>

Date: Wednesday, December 28, 2022 at 3:01 PM **To:** Alexander Krot < akrot@zlk.com>, Michael Lifrak

<michaellifrak@guinnemanuel.com>

Cc: Nicholas I. Porritt < nporritt@zlk.com>, Adam M Apton < aapton@zlk.com>, Elizabeth K Tripodi < etripodi@zlk.com>, Adam C McCall < amccall@zlk.com>,

Maxwell Weiss < mweiss@zlk.com>, Kathy Ames Valdivieso kavaldivieso@zlk.com>

Subject: [External]RE: In re Tesla, Inc. Securities Litigation

Counsel: having reviewed Professor Heston's Second Supplemental Report, please:

- 1. Confirm Professor Hartzmark intends to use the same but-for implied volatilities as reported in Appendix 8 of his November 10, 2021 report;
- 2. Confirm neither Professor Heston nor Dr. Hartzmark will be graphing "the transaction prices across strike prices for the same expiry to create a curve of actual transacted prices for Tesla options" or calculating the "actual implied volatility for any stock option . . . from its actual transacted price using the BSM model." Heston Second Supplemental Report at 4, n. 102; and
- 3. Provide an updated Appendix 8 to Dr. Hartzmark's report, as ordered by the Court and you have been promising for weeks. With just over two weeks left to trial, it is unacceptable that plaintiff has still not disclosed revised options damages numbers.

Given that Professor Heston's deposition is in two business days, please provide the requested confirmation and revised Appendix 8 today or we reserve the right to seek expedited relief from the Court.

Thanks, Anthony

Anthony P. Alden | Partner | Quinn Emanuel Urquhart & Sullivan, LLP

865 S. Figueroa St 10th Floor Los Angeles, Ca 90017 213-443-3159 Direct 213.443.3000 Main Office Number 213.443.3100 FAX anthonyalden@quinnemanuel.com www.quinnemanuel.com

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From: Alexander Krot <a krot@zlk.com > Sent: Tuesday, December 27, 2022 7:54 PM

To: Michael Lifrak <michaellifrak@quinnemanuel.com>; Anthony Alden

<anthonyalden@quinnemanuel.com>

Cc: Nicholas I. Porritt <nporritt@zlk.com>; Adam M Apton <aapton@zlk.com>; Elizabeth K Tripodi etripodi@zlk.com; Adam C McCall amccall@zlk.com; Maxwell Weiss

<mweiss@zlk.com>; Kathy Ames Valdivieso <kavaldivieso@zlk.com>

Subject: In re Tesla, Inc. Securities Litigation

[EXTERNAL EMAIL from akrot@zlk.com]

Counsel:

Please find attached the Second Supplemental Expert Report of Steven L. Heston.

Thank you,

Alexander A. Krot III LEVI&KORSINSKYLLP 1101 30th Street, NW Suite 115 Washington, DC 20007

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Exhibit B

UNITED STATES DISTRICT COURT NORTHERN DISTRICT OF CALIFORNIA

IN RE TESLA, INC. SECURITIES LITIGATION	Case No. 3:18-cv-04865-EMC
	Hon. Edward M. Chen

SECOND SUPPLEMENTAL EXPERT REPORT OF STEVEN L. HESTON, Ph.D.

December 27, 2022

Table of Contents

Ir	ıtrodu	uction	. 3
6.	The	BSM Model Can Calculate Counterfactual Option Prices	. 3
	6.1		

Introduction

- 1. In this report, I have been asked by Court-appointed Class Counsel Levi & Korsinsky, LLP, to provide a supplemental report in accordance with the Court's December 22, 2022 order and the Final Pretrial Conference Order dated December 7, 2022. I have prepared this report to be viewed in conjunction with the Expert Report of Steven L. Heston, Ph.D. dated November 8, 2021 ("Heston Report") and the Supplemental Expert Report of Steven L. Heston, Ph.D. dated March 5, 2022, that I previously submitted in this action.
- 2. I have relied on the materials listed in the Heston Report and referenced herein. The research and analysis upon which my opinions are based has been conducted by me with the support of Fideres Partners LLP whose staff has been working under my direction and supervision. My compensation does not depend in any way on my opinions or the outcome in this matter or any other. My conclusions are based on information available to me as of the date of this report. I may review, evaluate, and analyze relevant material that becomes available to me in the future. I reserve the right to amend, supplement, or otherwise modify my findings and conclusions as appropriate.
- 3. In paragraph 163 of the Heston Report, I stated that one way "to calculate the impact on traded options . . . is to calculate a unique but-for price, and then compare that to the transacted price." My opinion is that this is an appropriate and reasonable method of calculating the impact on option prices. In accordance with this statement in the Heston Report and the Court's Final Pretrial Conference Order dated December 7, 2022 and December 22, 2022 order, I hereby supplement the Heston Report by replacing Section 6 of the Heston Report with Section 6 below.¹

6. THE BSM MODEL CAN CALCULATE COUNTERFACTUAL OPTION PRICES

- 162. In this section, I present a reliable, reasonable, and robust methodology to calculate the impact on option prices given changes in underlying stock price and implied volatility.
 - 163. One way to calculate the impact on traded options is to calculate a unique but-for price,

¹ For convenience and consistency with the Heston Report, the section is numbered Section 6 to mirror the numbering in the Heston Report.

and then compare that to the transacted price.

164. In this methodology, the impact on a traded option is calculated as the difference between the actual option transaction price and the calculated but-for value for an option using a counterfactual stock price and counterfactual implied volatility.

165. For each Tesla option traded, the impact on a transacted option can be calculated using the BSM model¹⁰¹ as follows:

- a. Compute a BSM value using a but-for Tesla stock price and but-for volatility ("But-For Option Value"); and
- Subtract the But-For Option Value from the actual transacted price of that Tesla option.¹⁰²

166. The BSM formulas for but-for call and put option values, respectively are: 103

$$\begin{aligned} & Call_{but-for} = S_{but-for} N \big(d_{1 \ but-for} \big) - K e^{-r(T-t)} N (d_{2 \ but-for}), \\ & Put_{but-for} = K e^{-r(T-t)} N \big(-d_{2 \ but-for} \big) - S_{but-for} N \big(-d_{1 \ but-for} \big) \end{aligned}$$

where:

$$d_{1\,but-for} = \frac{ln\frac{S_{but-for}}{K} + \left(r + \frac{\sigma^2_{but-for}}{2}\right)(T-t)}{\sigma_{but-for}\sqrt{T-t}},$$

$$d_{2 but-for} = d_{1 but-for} - \sigma_{but-for} \sqrt{T-t}$$

T = option expiry,

T - t = time to expiration measured in calendar days,

Dumas, Fleming and Whaley (1998) have shown that the overparametrized Implied Binomial Tree approach predicts option price changes worse than Black-Scholes formula one week out of the data sample. They also show that Practitioner Black-Scholes model does not provide material improvement over the BSM model in calculating option prices. See Dumas, Bernard, Jeff Fleming, and Robert E. Whaley. "Implied Volatility Functions: Empirical Tests." The Journal of Finance, vol. 53, no. 6, 1998, pp. 2059-2106.

¹⁰² One can graph the transaction prices across strike prices for the same expiry to create a curve of actual transacted prices for Tesla options. The actual implied volatility for any stock option may be calculated from its actual transacted price using the BSM model.

¹⁰³ See Heston Report, ¶175.

 σ = implied volatility of the underlying,

and where N(.) represents the cumulative normal distribution function. The key variables in the equation above are: $S_{but-for}$ denoting the counterfactual stock price and $\sigma_{but-for}$, denoting the counterfactual implied volatility.

167. Table 5 below provides an example of how the impact on Tesla option prices is calculated for call and put options traded at 9:34 a.m. on August 8, 2018, with a January 17, 2020 expiry and \$400 strike price. If we assume that the 50.52% BSM model implied volatility on August 7, 2018, at 12:47 p.m. ¹⁰⁴ is the counterfactual implied volatility (the but-for implied volatility) and \$305.50 is the counterfactual Tesla stock price (the but-for price of Tesla common stock), the calculation shows that the call option traded for \$2.98 less than its but-for value and the put option traded for \$56.39 less than its but-for value.

Table	5: Illustrative Impact Example	
Trade Date	Aug 8, 2018 0	9:34
Expiry Date	Jan 17, 202	20
Days to Expiration	527	
Strike	\$400	
Assumed Interest Rate	2.40%	
Actual Tesla Stock Price	\$371.95	
But-For Tesla Stock Price		\$305.50
But-For Volatility		50.52%

	Actual Transacted Price	But-For Option Value	Impact
Call Option	\$45.00 (at 9:33:39 a.m.)	\$47.98	-\$2.98
Put Option	\$72.45 (at 9:33:48 a.m.)	\$128.84	-\$56.39

6.1 Measuring Implied Volatility Using ATM-forward Straddle Prices

168. Based on the BSM model, I can precisely quantify the BSM implied volatility using the price of ATM-forward straddles across a range of option maturities using the formula ¹⁰⁵:

¹⁰⁴ As listed in Table 6.

¹⁰⁵ See Brenner, Menachem, and Marti G. Subrahmanyam. "A Simple Formula to Compute the Implied Standard Deviation." Financial Analysts Journal, vol. 44, no. 5, 1988, pp. 80-83. See also Corrado, Charles J., and Thomas W. Miller Jr. "A Note on a Simple, Accurate Formula to Compute Implied Standard Deviations." Journal of Banking & Finance, vol. 20, no. 3, 1996, pp. 595-603.

$$\sigma = \frac{2 * N^{-1} \left(\frac{Y}{4} + 0.5\right)}{\sqrt{\frac{T - t}{365}}},$$

where:

Y = price of ATM-forward straddle, as a fraction of underlying price at time t,

T = option expiry,

T - t = time to expiration measured in calendar days,

 $N^{-1}(\cdot)$ = inverse function of cumulative normal distribution probability function,

 σ = implied volatility of the underlying.

169. To illustrate, the ATM-forward Jan 17, 2020 expiry Tesla straddle was worth 48.15% of the underlying stock price at the close of trading on August 6, 2018, which corresponds to an annualized BSM implied volatility of 50.91%. At close of trading of August 7, 2018, the same straddle was worth only 31.06% of the new stock price, which corresponds to a BSM volatility of 32.57%.

170. I apply this formula to the close of trading standardized ATM-forward straddle prices for each maturity traded during the Class Period shown in Table 8 in Appendix C. The result is shown in Table 6 below and repeated in Appendix C. ¹⁰⁶

	BSM Implied Volatility Maturity Date At Close 12:47 At Close														
Maturity Date	At Close	12:47	At Close												
	06-Aug	07-Aug	07-Aug	08-Aug	09-Aug	10-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug				
Aug 10, 2018	43.19%	53.65%	66.99%	61.90%	70.04%	NA	NA	NA	NA	NA	NA				
Aug 17, 2018	41.87%	45.87%	53.58%	52.11%	61.74%	54.83%	56.07%	49.24%	49.46%	44.36%	NA				
Aug 24, 2018	42.43%	44.70%	45.77%	49.55%	59.30%	54.83%	52.74%	48.59%	51.35%	47.74%	66.54%				
Aug 31, 2018	42.91%	44.06%	45.58%	47.81%	56.97%	54.06%	51.79%	49.77%	51.77%	49.45%	64.71%				
Sep 7, 2018	42.51%	43.14%	44.82%	46.08%	54.98%	52.08%	49.76%	48.67%	50.01%	48.58%	61.08%				
Sep 14, 2018	43.03%	43.39%	41.50%	45.39%	53.88%	51.55%	49.63%	48.96%	50.09%	49.24%	59.88%				
Sep 21, 2018	43.40%	43.70%	41.08%	44.25%	52.88%	50.86%	49.21%	48.93%	49.91%	49.18%	58.99%				
Sep 28, 2018	NA	NA	NA	NA	52.11%	50.29%	48.55%	48.60%	49.70%	49.33%	58.46%				
Oct 19, 2018	45.90%	45.79%	40.09%	43.44%	51.40%	49.49%	48.18%	48.41%	49.46%	49.56%	57.54%				
Nov 16, 2018	49.45%	49.22%	41.33%	44.12%	51.55%	50.29%	49.14%	49.51%	50.06%	50.28%	59.05%				
Dec 21, 2018	48.88%	49.10%	37.96%	41.82%	49.42%	47.66%	46.99%	47.49%	47.90%	48.16%	56.68%				
Jan 18, 2019	48.82%	48.97%	36.75%	40.92%	48.36%	46.69%	45.94%	46.41%	46.85%	47.00%	55.39%				
Feb 15, 2019	49.90%	49.97%	38.03%	40.48%	47.77%	46.50%	45.44%	45.77%	46.19%	46.60%	54.62%				
Mar 15, 2019	50.16%	50.14%	36.80%	39.96%	47.17%	45.65%	44.99%	45.17%	45.50%	45.94%	53.92%				
Jun 21, 2019	50.58%	50.36%	35.71%	38.72%	44.95%	43.88%	42.63%	42.77%	43.52%	43.76%	51.65%				
Aug 16, 2019	50.96%	50.63%	34.78%	38.46%	44.73%	43.04%	41.65%	41.90%	42.74%	42.95%	50.88%				
Jan 17, 2020	50.91%	50.52%	32.57%	37.08%	42.02%	40.43%	38.54%	38.37%	39.96%	40.87%	48.65%				

Table 6

Minute-by-minute BSM implied volatility can be calculated based on the CBOE DataShop Data using the same formulas.

I declare under penalty of perjury that the foregoing is true and correct.

RESPECTFULLY SUBMITTED THIS TWENTY-SEVENTH DAY OF DECEMBER 2022.

Steven L. Weston

Steven L. Heston, Ph.D.

Exhibit C

UNITED STATES DISTRICT COURT NORTHERN DISTRICT OF CALIFORNIA

IN RE TESLA, INC. SECURITIES LITIGATION

Case No. 18-cv-04865-EMC

Hon. Edward M. Chen

Supplemental Expert Damages Report of Michael L. Hartzmark, Ph.D.

December 31, 2022

- 1. For this report, I have been asked by Court-appointed Class Counsel Levi & Korsinsky, LLP to provide a supplemental report to the Expert Damages Report of Michael L. Hartzmark dated November 10, 2021 ("Damages Report"). I have prepared this supplemental report to be viewed in conjunction with the Damages Report.
- 2. In reaching the opinions in this report, I have relied upon the Second Supplemental Expert Report of Steven L. Heston, Ph.D. dated December 27, 2022 ("Heston Second Supplemental Report"), the Supplemental Expert Report of Steven L. Heston, Ph.D. dated March 5, 2022, the Expert Report of Steven L. Heston, Ph.D. dated November 8, 2021, the materials that are listed throughout the Damages Report, and the materials referenced herein. The research and analysis upon which my opinions are based have been conducted by me with the assistance of personnel working under my direction and supervision. I understand that I might be asked to review, evaluate and analyze relevant material that is produced, brought to my attention or otherwise becomes available to me. I reserve the right to amend, supplement, or otherwise modify this report.
- 3. Having reviewed the Heston Second Supplemental Report, the Final Pretrial Conference Order dated December 7, 2022, and the Court's December 22, 2022 order, I hereby supplement the Damages Report by submitting the attached Appendix 8(a).
- 4. Appendix 8(a) provides artificial inflation and deflation in Tesla options on a daily basis for the same range of options in Appendix 8 to the Damages Report based on the methodology described in the Heston Second Supplemental Report. In Appendix 8(a), I subtract the But-For Option Value¹ from the actual transacted price of that Tesla option to obtain the daily level of artificial inflation (a positive difference) or deflation (a negative difference) in each option.² This methodology could be applied on any time interval such

In the Damages Report, I previously referred to this as the "But-for Fitted Option Value" in Appendix 8. For the purposes of this report, I use the term the "But-for Option Value" for consistency with the Heston Second Supplemental Report (*see* Heston Second Supplemental Report, ¶165).

To calculate the daily level of inflation or deflation, I subtract the But-For Option Value from the last transacted option price each day (if a trade occurred) sourced from the 1-minute interval data obtained from the Cboe Exchange, Inc., Cboe DataShop.

Case 3:18-cv-04865-EMC Document 527-1 Filed 01/03/23 Page 28 of 62

as minute-by-minute by implementing the formulas in the Heston Second Supplemental

Report.

5. In my Damages Report, I stated that "the standard 'out-of-pocket' method of

calculating damages per contract for each member of the Class under Section 10(b)

involves a measure of the net minute-by-minute or daily inflation (or deflation) in the price

of the option contract at the time of the purchase and at the time of the sale."3 In the

Damages Report, I further stated that "[b]ased on a formulaic procedure that can

accommodate any modification determined to be necessary by the finder of fact, I calculate

the levels of artificial inflation (or deflation) in all of Tesla's securities that are related to

Plaintiff's allegations for the close on each day of the Class Period[.]"⁴ Appendix 8(a) is

consistent with these opinions.

I declare under penalty of perjury that the foregoing is true and correct.

RESPECTFULLY SUBMITTED THIS THIRTY-FIRST DAY OF DECEMBER 2022

Michael L. Hartzmark, Ph.D.

³ Damages Report, ¶228.

⁴ *Id.* at ¶13.

- 2 -

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	ed Price	ice But-For Option Value Based on Direct & Consequential Effects							But-For Op	tion Value	Based on	Direct Effect	ts
									•			Call	Put		•			Call	Put
ъ.	T	G. 11	ъ.		Time to	C.II	D 4	Stock	Implied	C.II	ъ.	Inflation/	Inflation/	Stock	Implied	C.II	ъ.	Inflation/	Inflation/
TSLA	Expiration 2018-08-10	Strike \$300.00	Date 2018-08-07	1.95%	Maturity 0.0082	75.00	0.12	312.90	Volatility 66.99%	Call 15.63	Put 2.68	(Deflation) 59.37	(Deflation) (2.56)	Price 356.30	Volatility 66.99%	Call 56.36	Put 0.01	(Deflation)	(Deflation) 0.11
TSLA	2018-08-10	\$300.00	2018-08-07	1.93%		73.83	0.12	312.90		14.29	1.36	59.54	(1.30)	353.59	61.90%	53.62	0.01	20.21	0.11
TSLA	2018-08-10		2018-08-09	1.90%		52.16	0.12	312.90		13.62	0.70	38.54	(0.58)	342.86	70.04%	42.88	0.00	9.28	0.12
TSLA	2018-08-10		2018-08-10	1.91%		52.00	0.01	312.90		12.90	0.00	39.10	0.01	343.59	n/a	43.59	0.00	8.41	0.01
TSLA	2018-08-10		2018-08-07	1.95%		37.05	0.85	312.90		0.78	27.83	36.27	(26.98)	356.30	66.99%	19.01	2.66	18.04	(1.81)
TSLA	2018-08-10		2018-08-08	1.92%		30.00	0.76	312.90		0.21	27.27	29.79	(26.51)	353.59	61.90%	15.35	1.72	14.65	(0.96)
TSLA	2018-08-10		2018-08-09	1.90%		13.85	1.55	312.90		0.05	27.13	13.80	(25.58)	342.86	70.04%	6.56	3.69	7.29	(2.14)
TSLA	2018-08-10	\$340.00	2018-08-10	1.91%	0.0000	15.90	0.01	312.90	n/a	0.00	27.10	15.90	(27.09)	343.59	n/a	3.59	0.00	12.31	0.01
TSLA	2018-08-10	\$380.00	2018-08-07	1.95%	0.0082	8.80	9.24	312.90	66.99%	0.00	67.04	8.80	(57.80)	356.30	66.99%	1.67	25.30	7.13	(16.06)
TSLA	2018-08-10		2018-08-08	1.92%		3.15	12.35	312.90		0.00	67.06	3.15	(54.71)	353.59	61.90%	0.42	26.79	2.73	(14.44)
TSLA	2018-08-10	\$380.00	2018-08-09	1.90%		0.50	28.32	312.90		0.00	67.08	0.50	(38.76)	342.86	70.04%	0.01	37.13	0.49	(8.81)
TSLA	2018-08-10	\$380.00	2018-08-10	1.91%	0.0000	0.01	24.77	312.90	n/a	0.00	67.10	0.01	(42.33)	343.59	n/a	0.00	36.41	0.01	(11.64)
TSLA	2018-08-10	\$420.00	2018-08-07	1.95%	0.0082	0.65	39.58	312.90	66.99%	0.00	107.03	0.65	(67.45)	356.30	66.99%	0.02	63.66	0.63	(24.08)
TSLA	2018-08-10	\$420.00	2018-08-08	1.92%		0.09	45.30	312.90		0.00	107.05	0.09	(61.75)	353.59	61.90%	0.00	66.36	0.09	(21.06)
TSLA	2018-08-10		2018-08-09	1.90%		0.04		312.90		0.00	107.07	0.04		342.86	70.04%	0.00	77.12	0.04	
TSLA	2018-08-10	\$420.00	2018-08-10	1.91%	0.0000	0.01		312.90	n/a	0.00	107.10	0.01		343.59	n/a	0.00	76.41	0.01	
TSLA	2018-08-10	\$460.00	2018-08-07	1.95%	0.0082	0.04		312.90	66.99%	0.00	147.02	0.04		356.30	66.99%	0.00	103.63	0.04	
TSLA	2018-08-10	\$460.00	2018-08-08	1.92%	0.0055	0.02		312.90	61.90%	0.00	147.05	0.02		353.59	61.90%	0.00	106.36	0.02	
TSLA	2018-08-10		2018-08-09	1.90%		0.01		312.90		0.00	147.07	0.01		342.86	70.04%	0.00	117.12	0.01	
TSLA	2018-08-10	\$460.00	2018-08-10	1.91%	0.0000			312.90	n/a	0.00	147.10			343.59	n/a	0.00	116.41		
TSLA	2018-08-10	\$500.00	2018-08-07	1.95%	0.0082	0.06		312.90	66.99%	0.00	187.02	0.06		356.30	66.99%	0.00	143.62	0.06	
TSLA	2018-08-10	\$500.00	2018-08-08	1.92%	0.0055	0.01		312.90	61.90%	0.00	187.04	0.01		353.59	61.90%	0.00	146.36	0.01	
TSLA	2018-08-10		2018-08-09	1.90%		0.02		312.90	70.04%	0.00	187.07	0.02		342.86	70.04%	0.00	157.11	0.02	
TSLA	2018-08-10	\$500.00	2018-08-10	1.91%	0.0000			312.90	n/a	0.00	187.10			343.59	n/a	0.00	156.41		
TSLA	2018-08-17	\$300.00	2018-08-07	1.95%	0.0274	74.00	0.43	312.90	53.58%	18.60	5.53	55.40	(5.10)	356.30	53.58%	56.74	0.28	17.26	0.15
TSLA	2018-08-17	\$300.00	2018-08-08	1.92%	0.0247	68.05	0.78	312.90	52.11%	17.85	4.80	50.20	(4.02)	353.59	52.11%	53.95	0.22	14.10	0.56
TSLA	2018-08-17	\$300.00	2018-08-09	1.90%		52.50	2.04	312.90		18.87	5.84	33.63	(3.80)	342.86	61.74%	43.91	0.93	8.59	1.11
TSLA	2018-08-17		2018-08-10			57.30	1.12	312.90		17.20	4.19	40.10	(3.07)	343.59	54.83%	44.05	0.36	13.25	0.76
TSLA	2018-08-17		2018-08-13	1.92%		57.57	0.46	312.90		15.45	2.48	42.12	(2.02)	341.77	56.07%	41.92	0.09	15.65	0.37
TSLA TSLA	2018-08-17 2018-08-17		2018-08-14 2018-08-15	1.95% 1.95%		50.50 39.00	0.29 0.29	312.90 312.90		14.21 13.63	1.26 0.69	36.29 25.37	(0.97) (0.40)	332.76 326.12	49.24% 49.46%	32.86 26.19	0.05 0.04	17.64 12.81	0.24 0.25
TSLA	2018-08-17		2018-08-15			35.00	0.29	312.90		13.03	0.09	21.98	0.02	324.18	44.36%	24.20	0.04	10.80	0.23
ISEA	2010 00 17	ψ500.00	2010 00 10	1.5570	0.0027	33.00	0.12	312.90	11.5070	15.02	0.10	21.70	0.02	321.10	11.5070	21.20	0.00	10.00	0.12
TSLA	2018-08-17		2018-08-07	1.95%		41.44	2.59	312.90		2.74	29.66	38.70	(27.07)	356.30	53.58%	22.26	5.78	19.18	(3.19)
TSLA	2018-08-17		2018-08-08	1.92%		33.00	3.40	312.90		2.18	29.12		(25.72)	353.59	52.11%	19.49	5.74	13.51	(2.34)
TSLA TSLA	2018-08-17 2018-08-17		2018-08-09 2018-08-10	1.90% 1.91%		19.95 20.85	8.09 5.30	312.90 312.90		2.97 1.74	29.92 28.71	16.98 19.11	(21.83) (23.41)	342.86 343.59	61.74% 54.83%	14.00 12.31	11.00 8.60	5.95 8.54	(2.91) (3.30)
TSLA	2018-08-17	\$340.00	2018-08-10	1.91%		19.81	3.20	312.90		0.68	27.71	19.11	(24.51)	343.39	56.07%	8.94	7.09	10.87	(3.89)
TSLA	2018-08-17		2018-08-13	1.95%		11.00	3.21	312.90		0.18	27.71	10.82	(24.01)	332.76	49.24%	3.07	10.26	7.93	(7.05)
TSLA	2018-08-17		2018-08-15	1.95%		4.20	5.55	312.90		0.05	27.11	4.15	(21.56)	326.12	49.46%	0.78	14.62	3.42	(9.07)
TSLA	2018-08-17	\$340.00	2018-08-16	1.95%	0.0027	1.29	5.85	312.90	44.36%	0.00	27.08	1.29	(21.23)	324.18	44.36%	0.06	15.85	1.23	(10.00)
TSLA	2018-08-17	\$380.00	2018-08-07	1.95%	0.0274	12.50	14.00	312.90	53.58%	0.16	67.05	12.34	(53.05)	356.30	53.58%	4.50	28.00	8.00	(14.00)
TSLA	2018-08-17		2018-08-07	1.92%		7.75	18.50	312.90		0.10	67.00	7.67	(48.50)	353.59	52.11%	3.15	29.38	4.60	(10.88)
TSLA	2018-08-17		2018-08-09	1.90%		4.00	32.05	312.90		0.19	67.13	3.81	(35.08)	342.86	61.74%	2.17	39.15	1.83	(7.10)
TSLA	2018-08-17		2018-08-10	1.91%		2.36	27.88	312.90		0.04	67.00	2.32	(39.12)	343.59	54.83%	1.19	37.46	1.17	(9.58)
TSLA	2018-08-17		2018-08-13	1.92%		1.38	25.02	312.90		0.00	67.02	1.38	(42.00)	341.77	56.07%	0.30	38.45	1.08	(13.43)
TSLA	2018-08-17	\$380.00	2018-08-14	1.95%	0.0082	0.42	30.80	312.90	49.24%	0.00	67.03	0.42	(36.23)	332.76	49.24%	0.01	47.19	0.41	(16.39)

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	ed Price	rice But-For Option Value Based on Direct & Consequential Effects							But-For Op	tion Value	Based on	Direct Effect	ts
Donat	E desta	64.91	D. c		Time to			Stock	Implied Volatility			Call Inflation/	Put Inflation/	Stock	Implied Volatility			Call Inflation/	Put Inflation/
TSLA	Expiration 2018-08-17	\$380.00	Date 2018-08-15	Rate 1.95%	0.0055	Call 0.20	41.14	312.90		0.00	Put 67.05	(Deflation) 0.20	(Deflation) (25.91)	Price 326.12		0.00	Put 53.84	(Deflation)	(Deflation) (12.70)
TSLA	2018-08-17		2018-08-16			0.20	44.18	312.90		0.00	67.08		(22.90)	324.18		0.00	55.80	0.20	(11.62)
TSLA	2018-08-17	\$420.00	2018-08-07	1.95%	0.0274	1.35	41.25	312.90	53.58%	0.00	106.88	1.35	(65.63)	356.30	53.58%	0.43	63.91	0.92	(22.66)
TSLA	2018-08-17	\$420.00	2018-08-08	1.92%	0.0247	0.69	52.27	312.90	52.11%	0.00	106.90	0.69	(54.63)	353.59	52.11%	0.21	66.41	0.48	(14.14)
TSLA	2018-08-17	\$420.00	2018-08-09	1.90%	0.0219	0.56	60.00	312.90	61.74%	0.01	106.93	0.55	(46.93)	342.86	61.74%	0.16	77.13	0.40	(17.13)
TSLA	2018-08-17	\$420.00	2018-08-10	1.91%	0.0192	0.20		312.90	54.83%	0.00	106.94	0.20		343.59	54.83%	0.04	76.29	0.16	
TSLA	2018-08-17	\$420.00	2018-08-13	1.92%	0.0110	0.14	62.75	312.90	56.07%	0.00	107.01	0.14	(44.26)	341.77	56.07%	0.00	78.14	0.14	(15.39)
TSLA	2018-08-17	\$420.00	2018-08-14	1.95%		0.04	67.37	312.90	49.24%	0.00	107.03	0.04	(39.66)	332.76	49.24%	0.00	87.17	0.04	(19.80)
TSLA	2018-08-17	\$420.00	2018-08-15			0.02	81.00	312.90		0.00	107.05		(26.05)	326.12		0.00	93.84	0.02	(12.84)
TSLA	2018-08-17	\$420.00	2018-08-16	1.95%	0.0027	0.01		312.90	44.36%	0.00	107.07	0.01		324.18	44.36%	0.00	95.79	0.01	
TSLA	2018-08-17	\$460.00	2018-08-07	1.95%	0.0274	0.15		312.90	53.58%	0.00	146.85	0.15		356.30	53.58%	0.02	103.48	0.13	
TSLA	2018-08-17	\$460.00	2018-08-08	1.92%	0.0247	0.05		312.90	52.11%	0.00	146.88	0.05		353.59	52.11%	0.01	106.20	0.04	
TSLA	2018-08-17	\$460.00	2018-08-09			0.10		312.90		0.00	146.90			342.86		0.01	116.96	0.09	
TSLA	2018-08-17		2018-08-10			0.05		312.90		0.00	146.93			343.59		0.00	116.24	0.05	
TSLA	2018-08-17	\$460.00	2018-08-13	1.92%		0.01		312.90		0.00	147.00			341.77		0.00	118.13	0.01	
TSLA	2018-08-17	\$460.00	2018-08-14			0.01		312.90		0.00	147.02			332.76		0.00	127.17	0.01	
TSLA	2018-08-17		2018-08-15			0.01		312.90		0.00	147.05			326.12		0.00	133.83	0.01	
TSLA	2018-08-17	\$460.00	2018-08-16	1.95%	0.0027			312.90	44.36%	0.00	147.07			324.18	44.36%	0.00	135.79		
TSLA	2018-08-17	\$500.00	2018-08-07	1.95%	0.0274	0.14	136.70	312.90	53.58%	0.00	186.83	0.14	(50.13)	356.30	53.58%	0.00	143.43	0.14	(6.73)
TSLA	2018-08-17	\$500.00	2018-08-08	1.92%	0.0247	0.03		312.90	52.11%	0.00	186.86	0.03		353.59	52.11%	0.00	146.17	0.03	
TSLA	2018-08-17	\$500.00	2018-08-09	1.90%		0.03		312.90		0.00	186.89	0.03		342.86		0.00	156.93	0.03	
TSLA	2018-08-17	\$500.00	2018-08-10			0.03		312.90		0.00	186.91	0.03		343.59		0.00	156.23	0.03	
TSLA	2018-08-17	\$500.00	2018-08-13		0.0110	0.01		312.90		0.00	186.99			341.77	56.07%	0.00	158.12	0.01	
TSLA	2018-08-17		2018-08-14		0.0082	0.02		312.90		0.00	187.02			332.76		0.00	167.16	0.02	
TSLA	2018-08-17	\$500.00	2018-08-15		0.0055		165.00	312.90		0.00	187.04		(22.04)	326.12		0.00	173.83		(8.83)
TSLA	2018-08-17	\$500.00	2018-08-16	1.95%	0.0027			312.90	44.36%	0.00	187.07			324.18	44.36%	0.00	175.79		
TSLA	2018-08-24	\$300.00	2018-08-07	1.95%	0.0466		1.33	312.90	45.77%	19.78	6.60		(5.27)	356.30	45.77%	57.09	0.52		0.81
TSLA	2018-08-24	\$300.00	2018-08-08			73.00	1.75	312.90		20.32	7.16		(5.41)	353.59		54.64	0.80	18.36	0.95
TSLA	2018-08-24	\$300.00	2018-08-09				4.45	312.90		22.18	9.04		()	342.86		45.65	2.55		1.90
TSLA	2018-08-24	\$300.00	2018-08-10			58.00	3.10	312.90		20.71	7.59		(4.49)	343.59		45.48	1.67	12.52	1.43
TSLA	2018-08-24	\$300.00	2018-08-13			59.03	2.00	312.90		18.92	5.84		(3.84)	341.77	52.74%	42.95	1.00	16.08	1.00
TSLA	2018-08-24	\$300.00	2018-08-14			52.69	1.64	312.90		17.71	4.64		(3.00)	332.76		34.09	1.17	18.60	0.47
TSLA	2018-08-24	\$300.00	2018-08-15		0.0247	40.95	2.40	312.90		17.72	4.67	23.23	(2.27)	326.12		28.20	1.94	12.75	0.46
TSLA	2018-08-24	\$300.00	2018-08-16			37.70	2.00	312.90		16.67	3.64	21.03	(1.64)	324.18	47.74%	25.82	1.50	11.88	0.50
TSLA	2018-08-24	\$340.00	2018-08-07			37.31	4.05	312.90		3.66	30.44		(26.39)	356.30		23.58	6.97	13.73	(2.92)
TSLA	2018-08-24	\$340.00	2018-08-08		0.0438	36.98	6.00	312.90		4.12	30.93		(24.93)	353.59		22.33	8.46	14.65	(2.46)
TSLA	2018-08-24	\$340.00	2018-08-09			24.40	11.85	312.90		5.74	32.57		(20.72)	342.86		17.97	14.84	6.43	(2.99)
TSLA	2018-08-24	\$340.00	2018-08-10			25.35	9.30	312.90		4.46	31.31	20.89	(22.01)	343.59		16.63	12.79	8.72	(3.49)
TSLA	2018-08-24	\$340.00	2018-08-13			24.05	7.10	312.90		2.99	29.89		(22.79)	341.77	52.74%	13.45	11.48	10.60	(4.38)
TSLA	2018-08-24	\$340.00	2018-08-14			17.32	8.09	312.90		2.08	28.99		(20.90)	332.76		7.62	14.68	9.70	(6.59)
TSLA	2018-08-24	\$340.00	2018-08-15			10.15	11.63	312.90		2.09	29.02		(17.39)	326.12		5.22	18.93	4.93	(7.30)
TSLA	2018-08-24	\$340.00	2018-08-16	1.95%	0.0219	7.05	12.17	312.90	47.74%	1.38	28.33	5.67	(16.16)	324.18	47.74%	3.54	19.21	3.51	(7.04)
TSLA	2018-08-24	\$380.00	2018-08-07			14.26	16.40	312.90		0.32	67.07		(50.67)	356.30		5.71	29.06	8.55	(12.66)
TSLA	2018-08-24	\$380.00	2018-08-08			10.70	22.00	312.90		0.43	67.21		(45.21)	353.59		5.55	31.64	5.15	(9.64)
TSLA	2018-08-24	\$380.00	2018-08-09			6.22	37.10	312.90		0.94	67.74		(30.64)	342.86		4.77	41.62	1.45	(4.52)
TSLA	2018-08-24	\$380.00	2018-08-10			5.30	31.75	312.90		0.52	67.34		(35.59)	343.59		3.68	39.81	1.62	(8.06)
TSLA	2018-08-24	\$380.00	2018-08-13			4.00	26.60	312.90		0.20	67.07		(40.47)	341.77		2.04	40.05	1.96	(13.45)
TSLA	2018-08-24	\$380.00	2018-08-14	1.95%	0.0274	1.92	31.00	312.90	48.59%	0.07	66.97	1.85	(35.97)	332.76	48.59%	0.60	47.64	1.32	(16.64)

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	ed Price	rice But-For Option Value Based on Direct & Consequential Effects							But-For Or	otion Value	Based on	Direct Effect	ts
									•			Call	Put	-	•			Call	Put
				Interest	Time to			Stock	Implied			Inflation/	Inflation/	Stock	Implied			Inflation/	Inflation/
Root	Expiration	Strike	Date	Rate	Maturity	Call	Put	Price	Volatility	Call	Put	(Deflation)	(Deflation)	Price	Volatility	Call	Put	(Deflation)	(Deflation)
TSLA	2018-08-24	\$380.00	2018-08-15		0.0247	1.26	46.00	312.90		0.07	66.99		(20.99)	326.12	51.35%	0.32	54.02	0.94	(8.02)
TSLA	2018-08-24	\$380.00	2018-08-16	1.95%	0.0219	0.79	41.00	312.90	47.74%	0.02	66.96	0.77	(25.96)	324.18	47.74%	0.11	55.76	0.68	(14.76)
TSLA	2018-08-24	\$420.00	2018-08-07	1.95%	0.0466	2.63		312.90	45.77%	0.02	106.73	2.61		356.30	45.77%	0.78	64.09	1.85	
TSLA	2018-08-24	\$420.00	2018-08-08	1.92%	0.0438	1.55	45.80	312.90	49.55%	0.03	106.77	1.52	(60.97)	353.59	49.55%	0.82	66.88	0.73	(21.08)
TSLA	2018-08-24	\$420.00	2018-08-09	1.90%	0.0411	0.94		312.90	59.30%	0.10	106.87	0.84		342.86	59.30%	0.87	77.68	0.07	
TSLA	2018-08-24	\$420.00	2018-08-10	1.91%	0.0384	0.63		312.90	54.83%	0.04	106.82	0.59		343.59	54.83%	0.50	76.60	0.13	
TSLA	2018-08-24	\$420.00	2018-08-13			0.42		312.90		0.01	106.86	0.41		341.77	52.74%	0.15	78.13	0.27	
TSLA	2018-08-24	\$420.00	2018-08-14			0.26	63.90	312.90		0.00	106.87	0.26	(42.97)	332.76	48.59%	0.02	87.03	0.24	(23.13)
TSLA	2018-08-24	\$420.00	2018-08-15			0.30	82.00	312.90		0.00	106.89		(24.89)	326.12	51.35%	0.01	93.69	0.29	(11.69)
TSLA	2018-08-24	\$420.00	2018-08-16	1.95%	0.0219	0.16	84.77	312.90	47.74%	0.00	106.92	0.16	(22.15)	324.18	47.74%	0.00	95.64	0.16	(10.87)
TSLA	2018-08-24	\$460.00	2018-08-07	1.95%		0.73		312.90		0.00	146.68			356.30	45.77%	0.06	103.35	0.67	
TSLA	2018-08-24	\$460.00	2018-08-08			0.20		312.90		0.00	146.71	0.20		353.59	49.55%	0.08	106.10	0.12	
TSLA	2018-08-24	\$460.00	2018-08-09			0.14		312.90		0.01	146.74			342.86	59.30%	0.12	116.90	0.02	
TSLA	2018-08-24	\$460.00	2018-08-10			0.11		312.90		0.00	146.76			343.59	54.83%	0.04	116.12	0.07	
TSLA	2018-08-24	\$460.00	2018-08-13			0.10		312.90		0.00	146.83			341.77	52.74%	0.01	117.97	0.09	
TSLA	2018-08-24	\$460.00	2018-08-14			0.10		312.90		0.00	146.85			332.76	48.59%	0.00	126.99	0.10	
TSLA TSLA	2018-08-24 2018-08-24	\$460.00 \$460.00	2018-08-15 2018-08-16			0.10 0.05		312.90 312.90		0.00	146.87 146.90	0.10 0.05		326.12 324.18	51.35% 47.74%	0.00	133.66 135.62	0.10 0.05	
ISLA	2018-08-24	\$400.00	2018-08-16	1.93%	0.0219	0.03		312.90	47.74%	0.00	140.90	0.03		324.18	47.74%	0.00	133.02	0.03	
TSLA	2018-08-24	\$500.00	2018-08-07	1.95%	0.0466	0.56		312.90	45.77%	0.00	186.64	0.56		356.30	45.77%	0.00	143.25	0.56	
TSLA	2018-08-24	\$500.00	2018-08-08			0.14		312.90		0.00	186.67	0.14		353.59	49.55%	0.00	145.99	0.14	
TSLA	2018-08-24	\$500.00	2018-08-09			0.06		312.90		0.00	186.71	0.06		342.86	59.30%	0.01	156.76	0.05	
TSLA	2018-08-24	\$500.00	2018-08-10			0.05		312.90		0.00	186.73			343.59	54.83%	0.00	156.05	0.05	
TSLA	2018-08-24	\$500.00	2018-08-13		0.0301	0.04		312.90		0.00	186.81	0.04		341.77	52.74%	0.00	157.94	0.04	
TSLA	2018-08-24	\$500.00	2018-08-14			0.03		312.90		0.00	186.83			332.76	48.59%	0.00	166.97	0.03	
TSLA	2018-08-24	\$500.00	2018-08-15		0.0247	0.03		312.90		0.00	186.86			326.12	51.35%	0.00	173.64	0.03	
TSLA	2018-08-24	\$500.00	2018-08-16	1.95%	0.0219			312.90	47.74%	0.00	186.88			324.18	47.74%	0.00	175.60		
TSLA	2018-08-31	\$300.00	2018-08-07	1.95%	0.0658	75.00	1.50	312.90	45.58%	21.89	8.60	53.11	(7.10)	356.30	45.58%	57.85	1.16	17.15	0.34
TSLA	2018-08-31	\$300.00	2018-08-08	1.92%	0.0630	76.05	2.75	312.90	47.81%	22.23	8.96	53.82	(6.21)	353.59	47.81%	55.45	1.50	20.60	1.25
TSLA	2018-08-31	\$300.00	2018-08-09	1.90%	0.0603	57.13	5.84	312.90	56.97%	24.51	11.26	32.62	(5.42)	342.86	56.97%	47.20	4.00	9.93	1.84
TSLA	2018-08-31	\$300.00	2018-08-10			58.67	4.75	312.90		23.32	10.09		(5.34)	343.59	54.06%	47.04	3.12	11.63	1.63
TSLA	2018-08-31	\$300.00	2018-08-13			60.00	3.70	312.90		21.61	8.42		(4.72)	341.77	51.79%	44.38	2.32	15.62	1.38
TSLA	2018-08-31	\$300.00	2018-08-14			51.58	3.33	312.90		20.75	7.57		(4.24)	332.76	49.77%	36.00	2.97	15.58	0.36
TSLA	2018-08-31	\$300.00	2018-08-15		0.0438	42.00	4.50	312.90		20.85	7.69		(3.19)	326.12	51.77%	30.61	4.23	11.39	0.27
TSLA	2018-08-31	\$300.00	2018-08-16	1.95%	0.0411	40.50	4.10	312.90	49.45%	19.92	6.78	20.58	(2.68)	324.18	49.45%	28.30	3.88	12.20	0.22
TSLA	2018-08-31	\$340.00	2018-08-07			40.00	8.30	312.90		5.44	32.10		(23.80)	356.30	45.58%	25.93	9.20	14.07	(0.90)
TSLA	2018-08-31	\$340.00	2018-08-08		0.0630	40.18	8.00	312.90		5.76	32.44		(24.44)	353.59	47.81%	24.51	10.51	15.67	(2.51)
TSLA	2018-08-31	\$340.00	2018-08-09			25.75	14.74	312.90		7.86	34.57		(19.83)	342.86	56.97%	20.69	17.44	5.06	(2.70)
TSLA	2018-08-31 2018-08-31	\$340.00 \$340.00	2018-08-10 2018-08-13			28.32 27.52	12.34 10.51	312.90		6.76	33.48		(21.14)	343.59	54.06% 51.79%	19.71	15.75	8.61	(3.41)
TSLA TSLA	2018-08-31	\$340.00	2018-08-13			20.71	10.31	312.90 312.90		5.23 4.47	32.00 31.26		(21.49) (20.81)	341.77 332.76	49.77%	16.69 11.20	14.60 18.13	10.83 9.51	(4.09) (7.68)
TSLA	2018-08-31	\$340.00	2018-08-14			13.61	16.23	312.90		4.57	31.20		(15.14)	326.12	51.77%	8.60	22.19	5.01	(5.96)
TSLA	2018-08-31	\$340.00	2018-08-16			11.50	15.72	312.90		3.79	30.61	7.71	(14.89)	324.18	49.45%	6.92	22.46	4.58	(6.74)
TSLA	2018-08-31	\$380.00	2018-08-07	1.95%	0.0658	17.75	18.21	312.90	45.58%	0.83	67.44	16.92	(49.23)	356.30	45.58%	7.97	31.19	9.78	(12.98)
TSLA	2018-08-31	\$380.00	2018-08-07			11.80	23.07	312.90		0.83	67.58		(44.51)	353.59	47.81%	7.53	33.48	4.27	(12.98)
TSLA	2018-08-31	\$380.00	2018-08-09			7.78	37.00	312.90		1.84	68.50		(31.50)	342.86	56.97%	6.87	43.58	0.91	(6.58)
TSLA	2018-08-31	\$380.00	2018-08-10			7.80	31.65	312.90		1.34	68.02		(36.37)	343.59	54.06%	5.94	41.94	1.86	(10.29)
TSLA	2018-08-31	\$380.00	2018-08-13			6.37	30.60	312.90		0.76	67.49		(36.89)	341.77	51.79%	4.05	41.92	2.32	(11.32)
	2018-08-31					3.60	33.95	312.90		0.53	67.28		(33.33)	332.76		2.02	48.92	1.58	(14.97)
													. /						` ′

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	ed Price	rice But-For Option Value Based on Direct & Consequential Effects							But-For Or	otion Value	Based on	Direct Effect	ts
									•			Call	Put		•			Call	Put
					Time to			Stock	Implied			Inflation/	Inflation/	Stock	Implied			Inflation/	Inflation/
Root	Expiration	Strike	Date	Rate	Maturity	Call	Put	Price	Volatility	Call	Put	(Deflation)		Price	Volatility	Call	Put	(Deflation)	(Deflation)
TSLA	2018-08-31	\$380.00	2018-08-15		0.0438	2.40		312.90		0.55	67.32			326.12		1.39	54.95	1.01	
TSLA	2018-08-31	\$380.00	2018-08-16	1.95%	0.0411	1.58		312.90	49.45%	0.35	67.14	1.23		324.18	49.45%	0.86	56.37	0.72	
TSLA	2018-08-31	\$420.00	2018-08-07	1.95%	0.0658	3.00	48.05	312.90	45.58%	0.08	106.64	2.92	(58.59)	356.30	45.58%	1.67	64.83	1.33	(16.78)
TSLA	2018-08-31	\$420.00	2018-08-08	1.92%	0.0630	2.24	46.95	312.90	47.81%	0.10	106.69	2.14	(59.74)	353.59	47.81%	1.60	67.51	0.64	(20.56)
TSLA	2018-08-31	\$420.00	2018-08-09	1.90%	0.0603	1.35	61.73	312.90	56.97%	0.33	106.95	1.02	(45.22)	342.86	56.97%	1.77	78.43	(0.42)	(16.70)
TSLA	2018-08-31	\$420.00	2018-08-10	1.91%	0.0575	1.10		312.90	54.06%	0.19	106.83	0.91		343.59	54.06%	1.31	77.26	(0.21)	
TSLA	2018-08-31	\$420.00	2018-08-13			1.11		312.90		0.07	106.77	1.04		341.77		0.65	78.48	0.46	
TSLA	2018-08-31	\$420.00	2018-08-14			0.55		312.90		0.04	106.75			332.76		0.22	87.08	0.33	
TSLA	2018-08-31	\$420.00	2018-08-15			0.50		312.90		0.04	106.78			326.12		0.14	93.66	0.36	
TSLA	2018-08-31	\$420.00	2018-08-16	1.95%	0.0411	0.34		312.90	49.45%	0.02	106.78	0.32		324.18	49.45%	0.06	95.54	0.28	
TSLA	2018-08-31	\$460.00	2018-08-07	1.95%	0.0658	0.90		312.90	45.58%	0.01	146.51	0.89		356.30	45.58%	0.25	103.36	0.65	
TSLA	2018-08-31	\$460.00	2018-08-08	1.92%	0.0630	0.38		312.90	47.81%	0.01	146.55	0.37		353.59	47.81%	0.25	106.10	0.13	
TSLA	2018-08-31	\$460.00	2018-08-09			0.21		312.90		0.05	146.62	0.16		342.86		0.37	116.98	(0.16)	
TSLA	2018-08-31	\$460.00	2018-08-10			0.13		312.90		0.02	146.61	0.11		343.59		0.22	116.13	(0.09)	
TSLA	2018-08-31	\$460.00	2018-08-13					312.90		0.00	146.66			341.77		0.07	117.86		
TSLA	2018-08-31	\$460.00	2018-08-14			0.11		312.90		0.00	146.68			332.76		0.02	126.84	0.09	
TSLA	2018-08-31	\$460.00	2018-08-15					312.90		0.00	146.70			326.12		0.01	133.50		
TSLA	2018-08-31	\$460.00	2018-08-16	1.95%	0.0411			312.90	49.45%	0.00	146.73			324.18	49.45%	0.00	135.45		
TSLA	2018-08-31	\$500.00	2018-08-07					312.90		0.00	186.46			356.30		0.03	143.09		
TSLA	2018-08-31	\$500.00	2018-08-08					312.90		0.00	186.49			353.59		0.03	145.83		
TSLA	2018-08-31	\$500.00	2018-08-09					312.90		0.01	186.53			342.86		0.06	156.63		
TSLA	2018-08-31	\$500.00	2018-08-10					312.90		0.00	186.55			343.59		0.03	155.89		
TSLA	2018-08-31	\$500.00	2018-08-13		0.0493			312.90		0.00	186.62			341.77	51.79%	0.01	157.76		
TSLA	2018-08-31	\$500.00	2018-08-14					312.90		0.00	186.64			332.76		0.00	166.79		
TSLA TSLA	2018-08-31 2018-08-31	\$500.00 \$500.00	2018-08-15 2018-08-16		0.0438 0.0411			312.90 312.90		0.00	186.67 186.69			326.12 324.18	51.77% 49.45%	0.00	173.45 175.42		
ISLA	2010-00-31	\$300.00	2018-08-10	1.9370	0.0411			312.90	49.4370	0.00	100.09		·	324.16	49.4370	0.00	1/3.42		
TSLA	2018-09-07	\$300.00	2018-08-07	1.95%	0.0849	63.50	3.15	312.90	44.82%	23.53	10.13	39.97	(6.98)	356.30	44.82%	58.62	1.82	4.88	1.33
TSLA	2018-09-07	\$300.00	2018-08-08			80.00	4.00	312.90		23.69	10.31	56.31	(6.31)	353.59		56.21	2.14	23.79	1.86
TSLA	2018-09-07	\$300.00	2018-08-09			57.00	7.47	312.90		26.34	12.98		(5.51)	342.86		48.56	5.25	8.44	2.22
TSLA	2018-09-07	\$300.00	2018-08-10			60.60	6.60	312.90		25.07	11.73		(5.13)	343.59		48.25	4.22	12.35	2.38
TSLA	2018-09-07	\$300.00	2018-08-13				5.20	312.90		23.42	10.12		(,2)	341.77	49.76%	45.56	3.39		1.81
TSLA	2018-09-07	\$300.00	2018-08-14			55.00	5.00	312.90		22.79	9.50		(4.50)	332.76		37.55	4.40	17.45	0.60
TSLA	2018-09-07	\$300.00	2018-08-15		0.0630	44.20	6.73	312.90		22.87	9.60		(2.87)	326.12		32.33	5.85	11.87	0.88
TSLA	2018-09-07	\$300.00	2018-08-16	1.95%	0.0603		6.10	312.90	48.58%	22.14	8.88		(2.78)	324.18	48.58%	30.21	5.68		0.42
TSLA	2018-09-07	\$340.00	2018-08-07			35.85	6.60	312.90		6.91	33.44		(26.84)	356.30		27.78	10.91	8.07	(4.31)
TSLA	2018-09-07	\$340.00	2018-08-08		0.0822	40.58	9.83	312.90		7.06	33.62		(23.79)	353.59	46.08%	26.18	12.05	14.40	(2.22)
TSLA	2018-09-07	\$340.00	2018-08-09			28.90	17.85	312.90		9.57	36.16		(18.31)	342.86		22.80	19.43	6.10	(1.58)
TSLA	2018-09-07	\$340.00	2018-08-10			30.50	15.26	312.90		8.37	34.97		(19.71)	343.59		21.75	17.66	8.75	(2.40)
TSLA TSLA	2018-09-07 2018-09-07	\$340.00 \$340.00	2018-08-13 2018-08-14			30.70 23.72	12.59	312.90		6.84	33.48 32.92		(20.89)	341.77 332.76	49.76%	18.82	16.60	11.88 10.18	(4.01)
TSLA	2018-09-07	\$340.00	2018-08-14			16.34	13.24 17.46	312.90 312.90		6.26 6.33	33.01		(19.68) (15.55)	326.12		13.54 10.78	20.35 24.25	5.56	(7.11) (6.79)
TSLA	2018-09-07	\$340.00	2018-08-15			13.72	18.09	312.90		5.68	32.37		(13.33)	324.18		9.26	24.67	4.46	(6.58)
ISLA	2010-07-07	Ψ.Ο.ΟΟ	2010-00-10	1.73/0	3.0003	13.72	10.07	312.90	70.5070	5.00	34.31	0.04	(17.20)	324.10	40.5070	7.20	27.07	7.40	(0.56)
TSLA	2018-09-07	\$380.00	2018-08-07			17.94	23.05	312.90		1.39	67.86		(44.81)	356.30		9.78	32.85	8.16	(9.80)
TSLA	2018-09-07	\$380.00	2018-08-08			14.30	22.50	312.90		1.46	67.96		(45.46)	353.59		9.07	34.88	5.23	(12.38)
TSLA	2018-09-07	\$380.00	2018-08-09			9.20	35.38	312.90 312.90		2.73	69.25		(33.87)	342.86		8.61	45.18	0.59	(9.80)
TSLA TSLA	2018-09-07 2018-09-07	\$380.00 \$380.00	2018-08-10 2018-08-13			9.50 9.26	31.95	312.90		2.09 1.37	68.63 67.96		(36.01)	343.59 341.77		7.58 5.59	43.43 43.32	1.92 3.67	(11.37)
	2018-09-07					5.15	33.60	312.90		1.13	67.74		(34.14)	332.76		3.33	50.08	1.82	(16.48)
ISLA	2010-09-0/	950U.UU	2010-00-14	1.9370	0.0056	5.15	55.00	312.90	40.0770	1.13	07.74	4.02	(34.14)	332.70	40.0770	3.33	30.08	1.02	(10.40)

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	d Price	ice But-For Option Value Based on Direct & Consequential Effects							But-For Op	tion Value	Based on	Direct Effect	ts
				Interest	Time to			Stock	Implied			Call Inflation/	Put Inflation/	Stock	Implied			Call Inflation/	Put Inflation/
Root	Expiration	Strike	Date	Rate	Maturity	Call	Put	Price	Volatility	Call	Put	(Deflation)	(Deflation)	Price	Volatility	Call	Put	(Deflation)	(Deflation)
TSLA	2018-09-07	\$380.00	2018-08-15	1.95%	0.0630	3.23	48.43	312.90	50.01%	1.16	67.79	2.07	(19.36)	326.12	50.01%	2.43	55.85	0.80	(7.42)
TSLA	2018-09-07	\$380.00	2018-08-16	1.95%	0.0603	2.55		312.90	48.58%	0.91	67.56	1.64		324.18	48.58%	1.81	57.18	0.74	
TSLA	2018-09-07	\$420.00	2018-08-07	1.95%	0.0849	4.45	58.48	312.90	44.82%	0.21	106.61	4.24	(48.13)	356.30	44.82%	2.57	65.57	1.88	(7.09)
TSLA	2018-09-07	\$420.00	2018-08-08	1.92%	0.0822	3.04	48.00	312.90	46.08%	0.22	106.66	2.82	(58.66)	353.59	46.08%	2.36	68.10	0.68	(20.10)
TSLA	2018-09-07	\$420.00	2018-08-09	1.90%	0.0795	1.65		312.90	54.98%	0.64	107.10			342.86	54.98%	2.67	79.18	(1.02)	
TSLA	2018-09-07	\$420.00	2018-08-10	1.91%		1.47		312.90	52.08%	0.41	106.89	1.06		343.59	52.08%	2.08	77.88	(0.61)	
TSLA	2018-09-07	\$420.00	2018-08-13	1.92%		1.50		312.90	49.76%	0.20	106.74	1.30		341.77	49.76%	1.22	78.90	0.28	
TSLA	2018-09-07	\$420.00	2018-08-14	1.95%	0.0658	1.00		312.90	48.67%	0.14	106.70			332.76	48.67%	0.58	87.28	0.42	
TSLA	2018-09-07	\$420.00	2018-08-15	1.95%	0.0630	0.74		312.90	50.01%	0.15	106.73	0.59		326.12	50.01%	0.39	93.75	0.35	
TSLA	2018-09-07	\$420.00	2018-08-16	1.95%	0.0603	0.61		312.90	48.58%	0.10	106.70	0.51		324.18	48.58%	0.24	95.56	0.37	
TSLA	2018-09-07	\$460.00	2018-08-07	1.95%	0.0849			312.90	44.82%	0.02	146.36			356.30	44.82%	0.52	103.46		
TSLA	2018-09-07	\$460.00	2018-08-08	1.92%	0.0822	0.50		312.90	46.08%	0.03	146.40	0.47		353.59	46.08%	0.48	106.16	0.02	
TSLA	2018-09-07	\$460.00	2018-08-09	1.90%	0.0795	0.37		312.90	54.98%	0.13	146.53	0.24		342.86	54.98%	0.70	117.15	(0.33)	
TSLA	2018-09-07	\$460.00	2018-08-10	1.91%	0.0767	0.17		312.90	52.08%	0.07	146.49			343.59	52.08%	0.47	116.21	(0.30)	
TSLA	2018-09-07	\$460.00	2018-08-13	1.92%	0.0685			312.90	49.76%	0.02	146.51			341.77	49.76%	0.21	117.83		
TSLA	2018-09-07	\$460.00	2018-08-14	1.95%	0.0658			312.90	48.67%	0.01	146.52	0.10		332.76	48.67%	0.07	126.73	0.15	
TSLA	2018-09-07 2018-09-07	\$460.00	2018-08-15	1.95%	0.0630	0.20		312.90	50.01% 48.58%	0.01	146.55	0.19		326.12	50.01%	0.05	133.36 135.30	0.15	
TSLA	2018-09-07	\$460.00	2018-08-16	1.95%	0.0603	0.19		312.90		0.01	146.56	0.18		324.18	48.58%	0.02	133.30	0.17	
TSLA	2018-09-07	\$500.00	2018-08-07	1.95%		0.59		312.90	44.82%	0.00	186.27	0.59		356.30	44.82%	0.09	142.96	0.50	
TSLA	2018-09-07	\$500.00	2018-08-08	1.92%		0.17		312.90	46.08%	0.00	186.31	0.17		353.59	46.08%	0.08	145.70	0.09	
TSLA	2018-09-07	\$500.00	2018-08-09	1.90%	0.0795	0.15		312.90	54.98%	0.02	186.36	0.13		342.86	54.98%	0.16	156.55	(0.01)	
TSLA	2018-09-07	\$500.00	2018-08-10	1.91%	0.0767			312.90	52.08%	0.01	186.37			343.59	52.08%	0.09	155.77		
TSLA	2018-09-07	\$500.00	2018-08-13	1.92%	0.0685			312.90	49.76%	0.00	186.44			341.77	49.76%	0.03	157.60		
TSLA	2018-09-07	\$500.00	2018-08-14	1.95%	0.0658	0.14		312.90	48.67%	0.00	186.46	0.14		332.76	48.67%	0.01	166.61	0.14	
TSLA	2018-09-07	\$500.00	2018-08-15	1.95%	0.0630	0.14		312.90	50.01%	0.00	186.48	0.14		326.12	50.01%	0.00	173.27	0.14	
TSLA	2018-09-07	\$500.00	2018-08-16	1.95%	0.0603	0.16		312.90	48.58%	0.00	186.51	0.16		324.18	48.58%	0.00	175.23	0.16	
TSLA	2018-09-14		2018-08-07	1.95%		73.75	3.25	312.90	41.50%	23.98	10.46		(7.21)	356.30	41.50%	58.90	1.99	14.85	1.26
TSLA	2018-09-14	\$300.00	2018-08-08	1.92%		79.60	4.80	312.90	45.39%	25.19	11.70	54.41	(6.90)	353.59	45.39%	57.09	2.91	22.51	1.89
TSLA	2018-09-14	\$300.00	2018-08-09	1.90%	0.0986		9.04	312.90	53.88%	28.07	14.60		(5.56)	342.86	53.88%	49.92	6.50		2.54
TSLA	2018-09-14	\$300.00	2018-08-10			58.25	7.98	312.90	51.55%	26.94	13.48		(5.50)	343.59	51.55%	49.65	5.51	8.60	2.47
TSLA	2018-09-14	\$300.00	2018-08-13	1.92%	0.0877	56.25	7.25	312.90	49.63%	25.43	12.02		(4.77)	341.77	49.63%	47.00	4.73	16.07	2.52
TSLA TSLA	2018-09-14 2018-09-14	\$300.00 \$300.00	2018-08-14 2018-08-15	1.95% 1.95%	0.0849 0.0822	56.25 46.60	6.50 8.25	312.90 312.90	48.96% 50.09%	24.93 25.03	11.52 11.64	31.32 21.57	(5.02)	332.76 326.12	48.96% 50.09%	39.28 34.25	6.02 7.65	16.97 12.35	0.48 0.60
TSLA	2018-09-14		2018-08-15		0.0822	43.50	8.15	312.90	49.24%	24.46	11.04		(2.94)	324.18	49.24%	32.30	7.65	11.20	0.50
													` ′					11.20	
TSLA	2018-09-14	\$340.00	2018-08-07	1.95%			9.75	312.90	41.50%	7.29	33.70		(23.95)	356.30	41.50%	28.28	11.29		(1.54)
TSLA	2018-09-14	\$340.00	2018-08-08	1.92%		43.80	10.05	312.90	45.39%	8.45	34.88	35.35	(24.83)	353.59	45.39%	27.89	13.63	15.91	(3.58)
TSLA	2018-09-14	\$340.00	2018-08-09	1.90%		29.89	19.42	312.90	53.88%	11.24	37.69		(18.27)	342.86	53.88%	24.79	21.29	5.10	(1.87)
TSLA	2018-09-14	\$340.00	2018-08-10	1.91% 1.92%	0.0959 0.0877	28.50	16.75	312.90	51.55% 49.63%	10.13	36.61	18.37	(19.86)	343.59	51.55% 49.63%	23.90	19.68	4.60	(2.93)
TSLA TSLA	2018-09-14 2018-09-14	\$340.00 \$340.00	2018-08-13 2018-08-14	1.92%	0.0877	31.15 25.78	14.60 15.57	312.90 312.90	48.96%	8.69 8.21	35.22 34.75		(20.62) (19.18)	341.77 332.76	48.96%	21.14 15.96	18.80 22.64	10.01 9.82	(4.20) (7.07)
TSLA	2018-09-14	\$340.00	2018-08-14	1.95%	0.0849	18.50	20.77	312.90	50.09%	8.21	34.73		(14.09)	326.12	50.09%	13.96	26.45	5.38	(5.68)
TSLA	2018-09-14		2018-08-15	1.95%	0.0822	16.00	20.77	312.90	49.24%	7.78	34.35		(13.60)	324.18	49.24%	11.71	27.00	4.29	(6.25)
TSLA	2018-09-14	\$380.00	2018-08-07	1.95%		20.06	20.75	312.90	41.50%	1.56	67.89		(47.14)	356.30	41.50%	10.25	33.18	9.81	(12.43)
TSLA	2018-09-14	\$380.00	2018-08-08	1.92%	0.1014	16.95	26.41	312.90	45.39%	2.12	68.48		(42.07)	353.59	45.39%	10.70	36.37	6.25	(9.96)
TSLA	2018-09-14	\$380.00	2018-08-09	1.90%		10.40	40.84	312.90	53.88%	3.71	70.09		(29.25)	342.86	53.88%	10.33	46.76	0.07	(5.92)
TSLA	2018-09-14	\$380.00	2018-08-10	1.91% 1.92%	0.0959	10.52	34.52	312.90	51.55%	3.04	69.44	7.48 9.10	(34.92)	343.59	51.55%	9.40 7.42	45.12	1.12 3.93	(10.60)
TSLA	2018-09-14 2018-09-14	\$380.00	2018-08-13 2018-08-14	1.92%		11.35 6.23	32.45	312.90 312.90	49.63% 48.96%	2.25 2.01	68.71 68.47	4.22	(36.02)	341.77 332.76	49.63% 48.96%	7.42 4.91	45.01 51.52	1.32	(19.07)
1 SLA	2018-09-14	\$380.00	2010-08-14	1.95%	0.0849	6.23	34.43	312.90	48.90%	2.01	08.47	4.22	(30.02)	332./6	48.90%	4.91	31.32	1.52	(19.07)

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	ed Price	rice But-For Option Value Based on Direct & Consequential Effects							But-For Op	tion Value	Based on	Direct Effect	ts
									•			Call	Put		•			Call	Put
				Interest	Time to			Stock	Implied			Inflation/	Inflation/	Stock	Implied			Inflation/	Inflation/
Root	Expiration	Strike	Date	Rate	Maturity	Call	Put	Price	Volatility	Call	Put	(Deflation)	(Deflation)	Price	Volatility	Call	Put	(Deflation)	(Deflation)
TSLA	2018-09-14	\$380.00	2018-08-15		0.0822	4.08		312.90		2.06	68.54			326.12	50.09%	3.79	57.06	0.29	
TSLA	2018-09-14	\$380.00	2018-08-16	1.95%	0.0795	3.39		312.90	49.24%	1.79	68.30	1.60		324.18	49.24%	3.12	58.35	0.27	
TSLA	2018-09-14	\$420.00	2018-08-07	1.95%	0.1041	4.48		312.90	41.50%	0.25	106.49	4.23		356.30	41.50%	2.82	65.67	1.66	
TSLA	2018-09-14	\$420.00	2018-08-08	1.92%	0.1014	3.89		312.90	45.39%	0.42	106.70	3.47		353.59	45.39%	3.26	68.86	0.63	
TSLA	2018-09-14	\$420.00	2018-08-09	1.90%	0.0986	2.16		312.90	53.88%	1.04	107.35	1.12		342.86	53.88%	3.68	80.03	(1.52)	
TSLA	2018-09-14	\$420.00	2018-08-10	1.91%	0.0959	2.25		312.90	51.55%	0.76	107.09	1.49		343.59	51.55%	3.08	78.72	(0.83)	
TSLA	2018-09-14	\$420.00	2018-08-13	1.92%	0.0877	1.75		312.90	49.63%	0.46	106.85	1.29		341.77	49.63%	2.08	79.60	(0.33)	
TSLA	2018-09-14	\$420.00	2018-08-14	1.95%		1.23		312.90		0.38	106.78	0.85		332.76	48.96%	1.18	87.72	0.05	
TSLA	2018-09-14	\$420.00	2018-08-15	1.95%		0.87		312.90		0.40	106.82	0.47		326.12	50.09%	0.86	94.06	0.01	
TSLA	2018-09-14	\$420.00	2018-08-16	1.95%	0.0795	0.70		312.90	49.24%	0.32	106.76	0.38		324.18	49.24%	0.63	95.80	0.07	
TSLA	2018-09-14	\$460.00	2018-08-07	1.95%		1.39		312.90		0.03	146.19			356.30	41.50%	0.61	103.38	0.78	
TSLA	2018-09-14	\$460.00	2018-08-08	1.92%		0.47		312.90		0.07	146.27	0.40		353.59	45.39%	0.82	106.33	(0.35)	
TSLA	2018-09-14	\$460.00	2018-08-09	1.90%		0.59		312.90		0.26	146.49			342.86	53.88%	1.15	117.43	(0.56)	
TSLA	2018-09-14	\$460.00	2018-08-10	1.91%		0.34		312.90		0.16	146.42			343.59	51.55%	0.87	116.44	(0.53)	
TSLA	2018-09-14	\$460.00	2018-08-13	1.92%				312.90		0.08	146.40			341.77	49.63%	0.48	117.93		
TSLA	2018-09-14	\$460.00	2018-08-14	1.95%		0.15		312.90		0.06	146.39			332.76	48.96%	0.23	126.71	(0.01)	
TSLA	2018-09-14		2018-08-15	1.95%		0.15		312.90		0.06	146.42			326.12	50.09%	0.16	133.30	(0.01)	
TSLA	2018-09-14	\$460.00	2018-08-16	1.95%	0.0795			312.90	49.24%	0.04	146.43			324.18	49.24%	0.10	135.21		
TSLA	2018-09-14	\$500.00	2018-08-07	1.95%	0.1041			312.90	41.50%	0.00	186.08			356.30	41.50%	0.11	142.79		
TSLA	2018-09-14	\$500.00	2018-08-08	1.92%	0.1014	0.21		312.90	45.39%	0.01	186.13	0.20		353.59	45.39%	0.17	145.61	0.04	
TSLA	2018-09-14	\$500.00	2018-08-09	1.90%		0.10	139.89	312.90		0.06	186.22	0.04	(46.33)	342.86	53.88%	0.32	156.53	(0.22)	(16.64)
TSLA	2018-09-14	\$500.00	2018-08-10	1.91%	0.0959	0.14		312.90	51.55%	0.03	186.21	0.11		343.59	51.55%	0.22	155.71	(0.08)	
TSLA	2018-09-14	\$500.00	2018-08-13	1.92%	0.0877			312.90	49.63%	0.01	186.27			341.77	49.63%	0.10	157.48		
TSLA	2018-09-14	\$500.00	2018-08-14	1.95%				312.90		0.01	186.28			332.76	48.96%	0.04	166.45		
TSLA	2018-09-14	\$500.00	2018-08-15	1.95%	0.0822			312.90		0.01	186.30			326.12	50.09%	0.03	173.11		
TSLA	2018-09-14	\$500.00	2018-08-16	1.95%	0.0795			312.90	49.24%	0.01	186.33			324.18	49.24%	0.01	175.06		
TSLA	2018-09-21	\$300.00	2018-08-07	1.95%	0.1233	82.00	3.90	312.90	41.08%	25.24	11.62	56.76	(7.72)	356.30	41.08%	59.61	2.59	22.39	1.31
TSLA	2018-09-21	\$300.00	2018-08-08	1.92%	0.1205	73.65	5.60	312.90	44.25%	26.32	12.72	47.33	(7.12)	353.59	44.25%	57.81	3.53	15.84	2.07
TSLA	2018-09-21	\$300.00	2018-08-09	1.90%	0.1178	60.50	10.35	312.90	52.88%	29.58	16.00	30.92	(5.65)	342.86	52.88%	51.17	7.63	9.33	2.72
TSLA	2018-09-21	\$300.00	2018-08-10	1.91%	0.1151	64.60	9.17	312.90	50.86%	28.51	14.95	36.09	(5.78)	343.59	50.86%	50.90	6.65	13.70	2.52
TSLA	2018-09-21	\$300.00	2018-08-13	1.92%	0.1068	66.90	7.95	312.90	49.21%	27.12	13.60	39.78	(5.65)	341.77	49.21%	48.31	5.92	18.59	2.03
TSLA	2018-09-21	\$300.00	2018-08-14	1.95%	0.1041	57.00	8.50	312.90	48.93%	26.76	13.25	30.24	(4.75)	332.76	48.93%	40.85	7.48	16.15	1.02
TSLA	2018-09-21	\$300.00	2018-08-15	1.95%	0.1014	47.25	10.01	312.90	49.91%	26.88	13.38	20.37	(3.37)	326.12	49.91%	35.95	9.24	11.30	0.77
TSLA	2018-09-21	\$300.00	2018-08-16	1.95%	0.0986	44.75	10.10	312.90	49.18%	26.34	12.86	18.41	(2.76)	324.18	49.18%	34.05	9.29	10.70	0.81
TSLA	2018-09-21	\$340.00	2018-08-07	1.95%		48.00	9.42	312.90		8.45	34.73		(25.31)	356.30	41.08%	29.70	12.59	18.30	(3.17)
TSLA	2018-09-21	\$340.00	2018-08-08	1.92%		42.00	12.62	312.90		9.50	35.81	32.50	(23.19)	353.59	44.25%	29.17	14.79	12.83	(2.17)
TSLA	2018-09-21	\$340.00	2018-08-09	1.90%		32.55	20.80	312.90		12.70	39.04		(18.24)	342.86	52.88%	26.51	22.89	6.04	(2.09)
TSLA	2018-09-21	\$340.00	2018-08-10	1.91%		32.50	18.45	312.90		11.65	38.00		(19.55)	343.59	50.86%	25.70	21.37	6.80	(2.92)
TSLA	2018-09-21	\$340.00	2018-08-13	1.92%		32.80	17.25	312.90		10.29	36.69		(19.44)	341.77	49.21%	23.09	20.62	9.71	(3.37)
TSLA	2018-09-21	\$340.00	2018-08-14	1.95%		26.65	19.13	312.90		9.95	36.36		(17.23)	332.76	48.93%	18.03	24.58	8.62	(5.45)
TSLA	2018-09-21	\$340.00	2018-08-15	1.95%		20.32	22.27	312.90		10.06	36.49		(14.22)	326.12	49.91%	15.12	28.33	5.20	(6.06)
TSLA	2018-09-21	\$340.00	2018-08-16	1.95%	0.0986	17.96	23.07	312.90	49.18%	9.55	35.99	8.41	(12.92)	324.18	49.18%	13.73	28.89	4.23	(5.82)
TSLA	2018-09-21	\$380.00	2018-08-07	1.95%		21.71	23.00	312.90		2.12	68.30		(45.30)	356.30	41.08%	11.67	34.45	10.04	(11.45)
TSLA	2018-09-21	\$380.00	2018-08-08	1.92%		17.27	28.00	312.90		2.68	68.89		(40.89)	353.59	44.25%	11.93	37.46	5.34	(9.46)
TSLA	2018-09-21	\$380.00	2018-08-09	1.90%		12.25	41.55	312.90		4.65	70.89		(29.34)	342.86	52.88%	11.86	48.15	0.39	(6.60)
TSLA	2018-09-21	\$380.00	2018-08-10	1.91%		11.95	39.17	312.90		3.96	70.22		(31.05)	343.59	50.86%	10.99	46.56	0.96	(7.39)
TSLA	2018-09-21	\$380.00	2018-08-13	1.92%		11.20	34.74	312.90		3.13	69.45		(34.71)	341.77	49.21%	9.04	46.48	2.16	(11.74)
TSLA	2018-09-21	\$380.00	2018-08-14	1.95%	0.1041	7.79	38.52	312.90	48.93%	2.94	69.26	4.85	(30.74)	332.76	48.93%	6.40	52.87	1.39	(14.35)

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Traded Price		But-For Option Value Based on Direct & Consequential Effects						But-For Option Value Based on Direct Effects					
D	E desta	64.71	D. c		Time to	Call	D4	Stock	Implied	C-II	D4	Call Inflation/	Put Inflation/	Stock	Implied	C-II	Dest	Call Inflation/	Put Inflation/
TSLA	Expiration 2018-09-21	Strike \$380.00	Date 2018-08-15	Rate 1.95%	Maturity 0.1014	5.30	47.23	312.90	Volatility 49.91%	3.00	Put 69.35	(Deflation)	(Deflation) (22.12)	Price 326.12	Volatility 49.91%	Call 5.11	Put 58.24	(Deflation)	(Deflation) (11.01)
TSLA	2018-09-21	\$380.00	2018-08-13			4.25	48.33	312.90		2.71	69.08		(20.75)	324.18		4.37	59.45	(0.12)	(11.01)
TSLA	2018-09-21	\$420.00	2018-08-07	1.95%	0.1233	5.00	56.00	312.90	41.08%	0.41	106.50	4.59	(50.50)	356.30	41.08%	3.64	66.33	1.36	(10.33)
TSLA	2018-09-21	\$420.00	2018-08-08	1.92%	0.1205	4.30	50.90	312.90	44.25%	0.61	106.74	3.69	(55.84)	353.59	44.25%	4.01	69.45	0.29	(18.55)
TSLA	2018-09-21	\$420.00	2018-08-09			2.75		312.90		1.49	107.65			342.86		4.66	80.86	(1.91)	
TSLA	2018-09-21	\$420.00	2018-08-10			2.80		312.90		1.16	107.33			343.59		4.05	79.53	(1.25)	
TSLA	2018-09-21	\$420.00	2018-08-13			2.25	63.45	312.90		0.79	107.03		(43.58)	341.77		2.96	80.32	(0.71)	(16.87)
TSLA	2018-09-21	\$420.00	2018-08-14			1.57	68.90	312.90		0.71	106.96		(38.06)	332.76		1.88	88.27	(0.31)	(19.37)
TSLA	2018-09-21	\$420.00	2018-08-15			1.09	89.83	312.90		0.74	107.01	0.35	(17.18)	326.12		1.43	94.48	(0.34)	(4.65)
TSLA	2018-09-21	\$420.00	2018-08-16	1.95%	0.0986	0.85		312.90	49.18%	0.63	106.92	0.22		324.18	49.18%	1.13	96.14	(0.28)	
TSLA	2018-09-21	\$460.00	2018-08-07			0.30		312.90		0.07	146.06	0.23		356.30	41.08%	0.93	103.53	(0.63)	
TSLA	2018-09-21	\$460.00	2018-08-08			0.81		312.90		0.12	146.15			353.59		1.14	106.48	(0.33)	
TSLA	2018-09-21	\$460.00	2018-08-09			0.62		312.90		0.43	146.50			342.86		1.64	117.75	(1.02)	
TSLA	2018-09-21	\$460.00	2018-08-10			0.49		312.90		0.30	146.39			343.59		1.32	116.72	(0.83)	
TSLA	2018-09-21	\$460.00	2018-08-13			0.46		312.90		0.17	146.33			341.77		0.83	118.12	(0.37)	
TSLA	2018-09-21	\$460.00	2018-08-14			0.37		312.90		0.15	146.31	0.22		332.76		0.47	126.78	(0.10)	
TSLA TSLA	2018-09-21 2018-09-21	\$460.00 \$460.00	2018-08-15 2018-08-16			0.26		312.90 312.90		0.16 0.12	146.34 146.34			326.12 324.18		0.34 0.25	133.32 135.18	(0.08)	
TSLA	2018-09-21	\$500.00				0.47		312.90		0.01	185.90			356.30		0.20	142.70	0.27	
TSLA	2018-09-21	\$500.00	2018-08-08			0.29	123.52	312.90		0.02	185.96		(62.44)	353.59		0.28	145.53	0.01	(22.01)
TSLA	2018-09-21	\$500.00	2018-08-09			0.17		312.90		0.12	186.09			342.86		0.53	156.55	(0.36)	
TSLA	2018-09-21	\$500.00	2018-08-10			0.21		312.90		0.07	186.07			343.59		0.39	155.70	(0.18)	
TSLA	2018-09-21	\$500.00	2018-08-13			0.15		312.90		0.03	186.10			341.77	49.21%	0.21	157.41	(0.06)	
TSLA TSLA	2018-09-21 2018-09-21	\$500.00 \$500.00	2018-08-14 2018-08-15			0.13 0.13		312.90 312.90		0.03 0.03	186.11 186.14			332.76 326.12		0.10 0.07	166.33 172.97	0.03 0.06	
TSLA	2018-09-21	\$500.00	2018-08-15			0.13		312.90		0.03	186.16			324.18		0.07	174.90	0.00	
TSLA	2018-09-28	\$300.00	2018-08-09				8.75	312.90		30.98	17.30		(0.00)	342.86		52.36	8.72	4600	0.03
TSLA	2018-09-28	\$300.00	2018-08-10			68.11	10.45	312.90		29.96	16.28		. ,	343.59		52.08	7.73	16.03	2.72
TSLA	2018-09-28	\$300.00	2018-08-13			66.85	9.48 9.95	312.90		28.53	14.90		. ,	341.77	48.55%	49.46	6.96	17.39	2.52
TSLA TSLA	2018-09-28 2018-09-28	\$300.00 \$300.00	2018-08-14 2018-08-15				9.95 11.90	312.90 312.90		28.33 28.54	14.70 14.94		()	332.76 326.12		42.23 37.51	8.75 10.69		1.20 1.21
TSLA	2018-09-28	\$300.00	2018-08-16				11.88	312.90		28.15	14.56			324.18		35.76	10.88		1.00
TSLA	2018-09-28	\$340.00	2018-08-09	1.90%	0.1370			312.90	52.11%	14.08	40.29			342.86	52.11%	28.11	24.37		
TSLA	2018-09-28	\$340.00	2018-08-10	1.91%	0.1342	31.98	20.50	312.90	50.29%	13.06	39.28	18.92	(18.78)	343.59	50.29%	27.35	22.89	4.63	(2.39)
TSLA	2018-09-28	\$340.00	2018-08-13	1.92%	0.1260	35.65	19.65	312.90	48.55%	11.65	37.93	24.00	(18.28)	341.77	48.55%	24.70	22.11	10.95	(2.46)
TSLA	2018-09-28	\$340.00	2018-08-14			30.65	21.80	312.90		11.45	37.73		(15.93)	332.76		19.77	26.20	10.88	(4.40)
TSLA	2018-09-28	\$340.00	2018-08-15			22.54	24.00	312.90		11.67	37.97		(13.97)	326.12		16.92	30.01	5.62	(6.01)
TSLA	2018-09-28	\$340.00	2018-08-16	1.95%	0.1178	20.50	25.05	312.90	49.33%	11.29	37.60	9.21	(12.55)	324.18	49.33%	15.65	30.69	4.85	(5.64)
TSLA	2018-09-28	\$380.00	2018-08-09			12.69		312.90		5.58	71.69			342.86		13.30	49.45	(0.61)	
TSLA	2018-09-28	\$380.00	2018-08-10			12.10		312.90		4.88	71.00			343.59		12.46	47.90	(0.36)	
TSLA	2018-09-28	\$380.00	2018-08-13			12.90		312.90		3.96	70.14			341.77		10.42	47.73	2.48	
TSLA	2018-09-28	\$380.00	2018-08-14			9.59		312.90		3.83	70.02			332.76		7.74	54.07	1.85	
TSLA	2018-09-28 2018-09-28	\$380.00	2018-08-15 2018-08-16			5.80 5.10		312.90		3.97	70.18 69.95			326.12 324.18		6.39	59.38	(0.59)	
TSLA								312.90		3.73						5.68	60.63	(0.58)	
TSLA	2018-09-28	\$420.00	2018-08-09			3.13		312.90		1.98	107.99			342.86		5.64	81.69	(2.51)	
TSLA	2018-09-28	\$420.00	2018-08-10			3.44		312.90		1.61	107.63			343.59		5.01	80.35	(1.57)	
TSLA	2018-09-28	\$420.00	2018-08-13	1.92%	0.1260	3.15		312.90	48.55%	1.16	107.24	1.99		341.77	48.55%	3.79	81.00	(0.64)	

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	ed Price	But-For	Option Val	ue Based or	n Direct &	Consequent	tial Effects	But-For Option Value Based on Direct Effects						
									•			Call	Put		•			Call	Put	
				Interest	Time to			Stock	Implied			Inflation/	Inflation/	Stock	Implied			Inflation/	Inflation/	
Root	Expiration	Strike	Date	Rate	Maturity	Call	Put	Price	Volatility	Call	Put	(Deflation)	(Deflation)	Price	Volatility	Call	Put	(Deflation)	(Deflation)	
TSLA	2018-09-28	\$420.00	2018-08-14	1.95%	0.1233	1.83		312.90	48.60%	1.10	107.18	0.73		332.76	48.60%	2.60	88.83	(0.77)		
TSLA	2018-09-28	\$420.00	2018-08-15	1.95%	0.1205	1.25		312.90	49.70%	1.16	107.27	0.09		326.12	49.70%	2.08	94.97	(0.83)		
TSLA	2018-09-28	\$420.00	2018-08-16	1.95%	0.1178	1.00		312.90	49.33%	1.05	107.18	(0.05)		324.18	49.33%	1.76	96.61	(0.76)		
TSLA	2018-09-28	\$460.00	2018-08-09	1.90%	0.1370			312.90	52.11%	0.64	146.54			342.86	52.11%	2.18	118.13			
TSLA	2018-09-28	\$460.00	2018-08-10	1.91%	0.1342			312.90	50.29%	0.48	146.40			343.59	50.29%	1.82	117.05			
TSLA	2018-09-28	\$460.00	2018-08-13	1.92%	0.1260			312.90	48.55%	0.30	146.28			341.77	48.55%	1.22	118.33			
TSLA	2018-09-28	\$460.00	2018-08-14	1.95%				312.90	48.60%	0.28	146.27			332.76	48.60%	0.77	126.90			
TSLA	2018-09-28	\$460.00	2018-08-15	1.95%				312.90	49.70%	0.30	146.32			326.12	49.70%	0.60	133.40			
TSLA	2018-09-28	\$460.00	2018-08-16	1.95%	0.1178			312.90	49.33%	0.26	146.30			324.18	49.33%	0.48	135.24			
TSLA	2018-09-28	\$500.00	2018-08-09	1.90%	0.1370			312.90	52.11%	0.20	185.99			342.86	52.11%	0.79	156.63			
TSLA	2018-09-28	\$500.00	2018-08-10	1.91%				312.90		0.13	185.95			343.59	50.29%	0.61	155.74			
TSLA	2018-09-28	\$500.00	2018-08-13	1.92%				312.90		0.07	185.96			341.77	48.55%	0.35	157.37			
TSLA	2018-09-28	\$500.00	2018-08-14	1.95%				312.90		0.06	185.96			332.76	48.60%	0.20	166.24			
TSLA	2018-09-28	\$500.00	2018-08-15	1.95%				312.90	49.70%	0.07	185.99			326.12	49.70%	0.16	172.86			
TSLA	2018-09-28	\$500.00	2018-08-16	1.95%	0.1178			312.90	49.33%	0.06	186.01			324.18	49.33%	0.12	174.79			
TSLA	2018-10-19	\$300.00	2018-08-07	2.05%	0.2000	85.00	7.00	312.90	57.54%	38.88	24.74	46.12	(17.74)	356.30	45.79%	64.72	7.20	20.28	(0.20)	
TSLA	2018-10-19	\$300.00	2018-08-08	2.05%		78.26	9.70	312.90		38.66	24.54	39.60	(14.84)	353.59	45.79%	62.34	7.54	15.92	2.16	
TSLA	2018-10-19	\$300.00	2018-08-09	2.05%		67.10	15.70	312.90		38.44	24.34	28.66	(8.64)	342.86	45.79%	53.56	9.51	13.54	6.19	
TSLA	2018-10-19	\$300.00	2018-08-10	2.04%		69.00	14.57	312.90		38.21	24.13	30.79	(9.56)	343.59	45.79%	53.98	9.22	15.02	5.35	
TSLA	2018-10-19	\$300.00	2018-08-13	2.05%		71.20	13.00	312.90		37.54	23.51	33.66	(10.51)	341.77	45.79%	52.08	9.19	19.12	3.81	
TSLA	2018-10-19	\$300.00	2018-08-14	2.07%		64.60	13.87	312.90		37.31	23.29	27.29	(9.42)	332.76	45.79%	45.05	11.17	19.55	2.70	
TSLA	2018-10-19	\$300.00	2018-08-15	2.06%		50.32	16.10	312.90		37.08	23.08	13.24	(6.98)	326.12	45.79%	40.06	12.84	10.26	3.26	
TSLA	2018-10-19	\$300.00	2018-08-16	2.06%	0.1753	51.50	16.65	312.90	57.54%	36.85	22.86	14.65	(6.21)	324.18	45.79%	38.52	13.25	12.98	3.40	
TSLA	2018-10-19	\$340.00	2018-08-07	2.05%	0.2000	48.80	13.63	312.90	57.54%	22.04	47.75	26.76	(34.12)	356.30	45.79%	38.05	20.36	10.75	(6.73)	
TSLA	2018-10-19	\$340.00	2018-08-08	2.05%	0.1973	46.75	18.51	312.90	57.54%	21.82	47.54	24.93	(29.03)	353.59	45.79%	36.14	21.18	10.61	(2.67)	
TSLA	2018-10-19	\$340.00	2018-08-09	2.05%	0.1945	37.23	28.37	312.90	57.54%	21.59	47.34	15.64	(18.97)	342.86	45.79%	29.57	25.35	7.66	3.02	
TSLA	2018-10-19	\$340.00	2018-08-10	2.04%	0.1918	38.10	24.40	312.90	57.54%	21.37	47.13	16.73	(22.73)	343.59	45.79%	29.77	24.86	8.33	(0.46)	
TSLA	2018-10-19	\$340.00	2018-08-13	2.05%	0.1836	39.00	23.48	312.90	57.54%	20.68	46.50	18.32	(23.02)	341.77	45.79%	28.14	25.09	10.86	(1.61)	
TSLA	2018-10-19	\$340.00	2018-08-14	2.07%	0.1808	32.90	25.43	312.90	57.54%	20.45	46.28	12.45	(20.85)	332.76	45.79%	23.16	29.13	9.74	(3.70)	
TSLA	2018-10-19	\$340.00	2018-08-15	2.06%	0.1781	27.50	29.72	312.90		20.22	46.07	7.28	(16.35)	326.12	45.79%	19.76	32.40	7.74	(2.68)	
TSLA	2018-10-19	\$340.00	2018-08-16	2.06%	0.1753	24.71	30.45	312.90	57.54%	19.98	45.85	4.73	(15.40)	324.18	45.79%	18.69	33.28	6.02	(2.83)	
TSLA	2018-10-19	\$380.00	2018-08-07	2.05%	0.2000	22.00	27.58	312.90	57.54%	11.78	77.32	10.22	(49.74)	356.30	45.79%	20.17	42.32	1.83	(14.74)	
TSLA	2018-10-19	\$380.00	2018-08-08	2.05%	0.1973	22.90	34.10	312.90	57.54%	11.59	77.15	11.31	(43.05)	353.59	45.79%	18.84	43.72	4.06	(9.62)	
TSLA	2018-10-19	\$380.00	2018-08-09	2.05%	0.1945	18.15	46.75	312.90	57.54%	11.40	76.99	6.75	(30.24)	342.86	45.79%	14.59	50.22	3.56	(3.47)	
TSLA	2018-10-19	\$380.00	2018-08-10	2.04%	0.1918	16.86	43.86	312.90	57.54%	11.21	76.83	5.65	(32.97)	343.59	45.79%	14.66	49.58	2.20	(5.72)	
TSLA	2018-10-19	\$380.00	2018-08-13	2.05%		17.50	41.30	312.90		10.65	76.32	6.85	(35.02)	341.77	45.79%	13.47	50.27	4.03	(8.97)	
TSLA	2018-10-19	\$380.00	2018-08-14	2.07%		13.00	43.20	312.90		10.46	76.14	2.54	(32.94)	332.76	45.79%	10.49	56.31	2.51	(13.11)	
TSLA	2018-10-19	\$380.00	2018-08-15	2.06%		9.61	55.20	312.90		10.27	75.97	(0.66)		326.12	45.79%	8.55	61.04	1.06	(5.84)	
TSLA	2018-10-19	\$380.00	2018-08-16	2.06%	0.1753	8.40		312.90	57.54%	10.08	75.80	(1.68)		324.18	45.79%	7.92	62.36	0.48		
TSLA	2018-10-19		2018-08-07	2.05%		8.50	62.50	312.90		6.01	111.39	2.49	(48.89)	356.30	45.79%	9.76	71.74	(1.26)	(9.24)	
TSLA	2018-10-19	\$420.00	2018-08-08	2.05%		8.00	55.77	312.90		5.87	111.27	2.13	(55.50)	353.59	45.79%	8.95	73.66	(0.95)	(17.89)	
TSLA	2018-10-19	\$420.00	2018-08-09	2.05%		6.05	77.45	312.90		5.74	111.16	0.31	(33.71)	342.86	45.79%	6.54	82.00	(0.49)	(4.55)	
TSLA	2018-10-19	\$420.00	2018-08-10	2.04%		5.85	70.50	312.90		5.60	111.06	0.25	(40.56)	343.59	45.79%	6.54	81.31	(0.69)	(10.81)	
TSLA	2018-10-19	\$420.00	2018-08-13	2.05%		5.30	75.35	312.90		5.20	110.72	0.10	(35.37)	341.77	45.79%	5.80	82.45	(0.50)	(7.10)	
TSLA	2018-10-19	\$420.00	2018-08-14	2.07%	0.1808	3.77	72.80	312.90		5.07	110.59	(1.30)	(37.79)	332.76	45.79%	4.26	89.93	(0.49)	(17.13)	
TSLA	2018-10-19	\$420.00	2018-08-15	2.06%		2.24	84.16	312.90		4.93	110.49	(2.69)	(26.33)	326.12	45.79%	3.31	95.65	(1.07)	(11.49)	
TSLA	2018-10-19	\$420.00	2018-08-16	2.06%	0.1753	1.90		312.90	57.54%	4.80	110.38	(2.90)		324.18	45.79%	3.00	97.30	(1.10)		

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trad	ed Price	But-For	Option Val	ue Based or	n Direct &	Consequent	ial Effects		But-For Op	tion Value	Based on	Direct Effect	s
									•			Call	Put	_	•			Call	Put
				Interest	Time to			Stock	Implied			Inflation/	Inflation/	Stock	Implied			Inflation/	Inflation/
Root	Expiration	Strike	Date	Rate	Maturity	Call	Put	Price	Volatility	Call	Put	(Deflation)	(Deflation)	Price	Volatility	Call	Put	(Deflation)	(Deflation)
TSLA	2018-10-19	\$460.00	2018-08-07	2.05%	0.2000	2.10		312.90	57.54%	2.96	148.17	(0.86)		356.30	45.79%	4.37	106.19	(2.27)	
TSLA	2018-10-19	\$460.00	2018-08-08	2.05%	0.1973	1.97		312.90	57.54%	2.87	148.11	(0.90)		353.59	45.79%	3.93	108.48	(1.96)	
TSLA	2018-10-19	\$460.00	2018-08-09	2.05%	0.1945	1.35		312.90		2.78	148.05	(1.43)		342.86	45.79%	2.70	118.01	(1.35)	
TSLA	2018-10-19	\$460.00	2018-08-10	2.04%		1.35		312.90		2.69	147.99	(1.34)		343.59	45.79%	2.69	117.30	(1.34)	
TSLA	2018-10-19	\$460.00	2018-08-13	2.05%		0.94		312.90		2.44	147.80	(1.50)		341.77	45.79%	2.29	118.79	(1.35)	
TSLA	2018-10-19	\$460.00	2018-08-14	2.07%		0.88		312.90		2.35	147.73	(1.47)		332.76	45.79%	1.59	127.11	(0.71)	
TSLA	2018-10-19		2018-08-15	2.06%		0.62		312.90		2.27	147.68	(1.65)		326.12	45.79%	1.17	133.37	(0.55)	
TSLA	2018-10-19	\$460.00	2018-08-16	2.06%	0.1753	0.45		312.90	57.54%	2.19	147.63	(1.74)		324.18	45.79%	1.04	135.19	(0.59)	
TSLA	2018-10-19	\$500.00	2018-08-07	2.05%	0.2000	0.45		312.90	57.54%	1.42	186.47	(0.97)		356.30	45.79%	1.84	143.49	(1.39)	
TSLA	2018-10-19	\$500.00	2018-08-08	2.05%	0.1973	0.40		312.90	57.54%	1.37	186.44	(0.97)		353.59	45.79%	1.62	146.01	(1.22)	
TSLA	2018-10-19	\$500.00	2018-08-09	2.05%	0.1945	0.40		312.90	57.54%	1.31	186.42	(0.91)		342.86	45.79%	1.05	156.20	(0.65)	
TSLA	2018-10-19	\$500.00	2018-08-10	2.04%	0.1918	0.40		312.90	57.54%	1.26	186.40	(0.86)		343.59	45.79%	1.04	155.49	(0.64)	
TSLA	2018-10-19	\$500.00	2018-08-13	2.05%	0.1836	0.31		312.90	57.54%	1.11	186.33	(0.80)		341.77	45.79%	0.85	157.20	(0.54)	
TSLA	2018-10-19	\$500.00	2018-08-14	2.07%	0.1808	0.22		312.90	57.54%	1.06	186.29	(0.84)		332.76	45.79%	0.55	165.92	(0.33)	
TSLA	2018-10-19	\$500.00	2018-08-15	2.06%	0.1781			312.90	57.54%	1.01	186.28			326.12	45.79%	0.39	172.44		
TSLA	2018-10-19	\$500.00	2018-08-16	2.06%	0.1753	0.25		312.90	57.54%	0.97	186.26	(0.72)		324.18	45.79%	0.33	174.35	(0.08)	
TSLA	2018-11-16	\$300.00	2018-08-07	2.05%	0.2767	89.00	11.07	312.90	59.05%	45.46	30.86	43.54	(19.79)	356.30	49.22%	70.28	12.29	18.72	(1.22)
TSLA	2018-11-16	\$300.00	2018-08-08	2.05%	0.2740	82.40	14.00	312.90	59.05%	45.27	30.69	37.13	(16.69)	353.59	49.22%	68.00	12.73	14.40	1.27
TSLA	2018-11-16	\$300.00	2018-08-09	2.05%	0.2712	71.50	21.65	312.90	59.05%	45.08	30.51	26.42	(8.86)	342.86	49.22%	59.62	15.10	11.88	6.55
TSLA	2018-11-16	\$300.00	2018-08-10	2.04%	0.2685	71.00	20.53	312.90	59.05%	44.88	30.34	26.12	(9.81)	343.59	49.22%	60.01	14.78	10.99	5.75
TSLA	2018-11-16	\$300.00	2018-08-13	2.05%	0.2603	76.00	18.70	312.90	59.05%	44.30	29.80	31.70	(11.10)	341.77	49.22%	58.19	14.82	17.81	3.88
TSLA	2018-11-16	\$300.00	2018-08-14	2.07%	0.2575		19.68	312.90	59.05%	44.11	29.61		(9.93)	332.76	49.22%	51.46	17.11		2.57
TSLA	2018-11-16	\$300.00	2018-08-15	2.06%	0.2548		22.72	312.90	59.05%	43.91	29.43		(6.71)	326.12	49.22%	46.65	18.96		3.76
TSLA	2018-11-16	\$300.00	2018-08-16	2.06%	0.2521	56.00	22.30	312.90	59.05%	43.71	29.25	12.29	(6.95)	324.18	49.22%	45.17	19.43	10.83	2.87
TSLA	2018-11-16	\$340.00	2018-08-07	2.05%	0.2767	51.00	24.00	312.90	59.05%	28.82	53.99	22.18	(29.99)	356.30	49.22%	45.60	27.38	5.40	(3.38)
TSLA	2018-11-16	\$340.00	2018-08-08	2.05%	0.2740	52.50	24.00	312.90	59.05%	28.62	53.81	23.88	(29.81)	353.59	49.22%	43.73	28.23	8.77	(4.23)
TSLA	2018-11-16	\$340.00	2018-08-09	2.05%	0.2712	42.71	33.63	312.90	59.05%	28.42	53.63	14.29	(20.00)	342.86	49.22%	37.15	32.40	5.56	1.23
TSLA	2018-11-16	\$340.00	2018-08-10	2.04%	0.2685		32.70	312.90	59.05%	28.22	53.46		(20.76)	343.59	49.22%	37.38	31.93		0.77
TSLA	2018-11-16	\$340.00	2018-08-13	2.05%	0.2603	46.15	29.50	312.90	59.05%	27.62	52.90	18.53	(23.40)	341.77	49.22%	35.79	32.21	10.36	(2.71)
TSLA	2018-11-16	\$340.00	2018-08-14	2.07%	0.2575	43.50	29.40	312.90	59.05%	27.42	52.71	16.08	(23.31)	332.76	49.22%	30.69	36.13	12.81	(6.73)
TSLA	2018-11-16	\$340.00	2018-08-15	2.06%	0.2548	31.90	36.83	312.90	59.05%	27.21	52.53	4.69	(15.70)	326.12	49.22%	27.14	39.24	4.76	(2.41)
TSLA	2018-11-16	\$340.00	2018-08-16	2.06%	0.2521	30.70	36.50	312.90	59.05%	27.00	52.34	3.70	(15.84)	324.18	49.22%	26.02	40.07	4.68	(3.57)
TSLA	2018-11-16	\$380.00	2018-08-07	2.05%	0.2767	30.00	33.96	312.90	59.05%	17.69	82.64	12.31	(48.68)	356.30	49.22%	28.00	49.55	2.00	(15.59)
TSLA	2018-11-16		2018-08-08	2.05%		29.50	39.73	312.90		17.51	82.48	11.99	(42.75)	353.59	49.22%	26.58	50.86	2.92	(11.13)
TSLA	2018-11-16	\$380.00	2018-08-09	2.05%	0.2712	22.44	53.68	312.90	59.05%	17.34	82.32	5.10	(28.64)	342.86	49.22%	21.83	56.87	0.61	(3.19)
TSLA	2018-11-16	\$380.00	2018-08-10	2.04%		24.31		312.90		17.15	82.17	7.16		343.59	49.22%	21.94	56.28	2.37	
TSLA	2018-11-16	\$380.00	2018-08-13	2.05%	0.2603	23.30	47.30	312.90	59.05%	16.61	81.69	6.69	(34.39)	341.77	49.22%	20.69	56.89	2.61	(9.59)
TSLA	2018-11-16		2018-08-14	2.07%		19.20	47.60	312.90		16.44	81.51	2.76	(33.91)	332.76	49.22%	17.18	62.40	2.02	(14.80)
TSLA	2018-11-16	\$380.00	2018-08-15	2.06%		14.06		312.90	59.05%	16.25	81.36	(2.19)		326.12	49.22%	14.79	66.68	(0.73)	
TSLA	2018-11-16		2018-08-16	2.06%	0.2521	12.79		312.90		16.07	81.20	(3.28)		324.18	49.22%	14.02	67.87	(1.23)	
TSLA	2018-11-16	\$420.00	2018-08-07	2.05%	0.2767	14.50		312.90	59.05%	10.60	115.32	3.90		356.30	49.22%	16.41	77.73	(1.91)	
TSLA	2018-11-16	\$420.00	2018-08-08	2.05%		12.24	59.88	312.90		10.46	115.20	1.78	(55.32)	353.59	49.22%	15.41	79.46	(3.17)	(19.58)
TSLA	2018-11-16		2018-08-09	2.05%		9.25	79.53	312.90		10.31	115.08	(1.06)	(35.55)	342.86	49.22%	12.23	87.04	(2.98)	(7.51)
TSLA	2018-11-16		2018-08-10	2.04%		8.90		312.90		10.17	114.97	(1.27)		343.59	49.22%	12.27	86.39	(3.37)	
TSLA	2018-11-16	\$420.00	2018-08-13	2.05%		9.20		312.90		9.73	114.59	(0.53)		341.77	49.22%	11.36	87.35	(2.16)	
TSLA	2018-11-16	\$420.00	2018-08-14	2.07%	0.2575	6.65		312.90		9.59	114.45	(2.94)		332.76	49.22%	9.12	94.13	(2.47)	
TSLA	2018-11-16	\$420.00	2018-08-15	2.06%	0.2548	4.33		312.90		9.44	114.34	(5.11)		326.12	49.22%	7.64	99.33	(3.31)	
TSLA	2018-11-16	\$420.00	2018-08-16	2.06%	0.2521	3.80		312.90	59.05%	9.29	114.21	(5.49)		324.18	49.22%	7.16	100.80	(3.36)	

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	ed Price	But-For	Option Val	ue Based or	n Direct &	Consequent	ial Effects		But-For Op	tion Value	Based on	Direct Effect	s
						·			•			Call	Put		•			Call	Put
				Interest	Time to			Stock	Implied			Inflation/	Inflation/	Stock	Implied			Inflation/	Inflation/
Root	Expiration	Strike	Date	Rate	Maturity	Call	Put	Price	Volatility	Call	Put	(Deflation)	(Deflation)	Price	Volatility	Call	Put	(Deflation)	(Deflation)
TSLA	2018-11-16	\$460.00	2018-08-07	2.05%	0.2767		94.55	312.90	59.05%	6.25	150.74		(56.19)	356.30	49.22%	9.26	110.36		(15.81)
TSLA	2018-11-16	\$460.00	2018-08-08	2.05%	0.2740	3.60		312.90	59.05%	6.14	150.66	(2.54)		353.59		8.60	112.43	(5.00)	
TSLA	2018-11-16	\$460.00	2018-08-09	2.05%	0.2712			312.90	59.05%	6.03	150.57			342.86		6.59	121.18		
TSLA	2018-11-16	\$460.00	2018-08-10	2.04%	0.2685			312.90		5.92	150.50			343.59		6.60	120.50		
TSLA	2018-11-16	\$460.00	2018-08-13	2.05%	0.2603		102.50	312.90		5.59	150.24	(2.20)	(47.74)	341.77		5.99	121.77	(2.45)	(19.27)
TSLA	2018-11-16	\$460.00	2018-08-14	2.07%	0.2575	2.20		312.90		5.48	150.13	(3.28)		332.76		4.65	129.45	(2.45)	
TSLA	2018-11-16		2018-08-15	2.06%	0.2548	1.07		312.90		5.37	150.06	(4.10)		326.12		3.79	135.27	(2.44)	
TSLA	2018-11-16	\$400.00	2018-08-16	2.06%	0.2521	1.07		312.90	59.05%	5.26	149.98	(4.19)		324.18	49.22%	3.51	136.94	(2.44)	
TSLA	2018-11-16	\$500.00	2018-08-07	2.05%	0.2767	1.76		312.90	59.05%	3.64	187.90	(1.88)		356.30	49.22%	5.07	145.94	(3.31)	
TSLA	2018-11-16	\$500.00	2018-08-08	2.05%	0.2740	0.83		312.90	59.05%	3.56	187.85	(2.73)		353.59	49.22%	4.65	148.26	(3.82)	
TSLA	2018-11-16	\$500.00	2018-08-09	2.05%	0.2712	1.08		312.90	59.05%	3.48	187.80	(2.40)		342.86	49.22%	3.45	157.82	(2.37)	
TSLA	2018-11-16	\$500.00	2018-08-10	2.04%	0.2685	1.00		312.90	59.05%	3.40	187.76	(2.40)		343.59	49.22%	3.44	157.12	(2.44)	
TSLA	2018-11-16	\$500.00	2018-08-13	2.05%	0.2603	0.95		312.90	59.05%	3.17	187.60	(2.22)		341.77	49.22%	3.06	158.63	(2.11)	
TSLA	2018-11-16	\$500.00	2018-08-14	2.07%	0.2575	0.65		312.90	59.05%	3.09	187.53	(2.44)		332.76	49.22%	2.30	166.88	(1.65)	
TSLA	2018-11-16	\$500.00	2018-08-15	2.06%	0.2548	0.45		312.90	59.05%	3.01	187.49	(2.56)		326.12	49.22%	1.82	173.09	(1.37)	
TSLA	2018-11-16	\$500.00	2018-08-16	2.06%	0.2521			312.90	59.05%	2.94	187.44			324.18	49.22%	1.67	174.89		
TSLA	2018-12-21	\$300.00	2018-08-07	2.05%	0.3726	91.00	13.75	312.90	56.68%	49.95	34.76	41.05	(21.01)	356.30	49.10%	74.97	16.39	16.03	(2.64)
TSLA	2018-12-21	\$300.00	2018-08-08	2.05%	0.3699	83.43	16.93	312.90	56.68%	49.79	34.62	33.64	(17.69)	353.59	49.10%	72.75	16.90	10.68	0.03
TSLA	2018-12-21	\$300.00	2018-08-09	2.05%	0.3671	73.35	24.50	312.90	56.68%	49.63	34.48	23.72	(9.98)	342.86	49.10%	64.57	19.47	8.78	5.03
TSLA	2018-12-21	\$300.00	2018-08-10	2.04%	0.3644	73.47	23.75	312.90	56.68%	49.47	34.34	24.00	(10.59)	343.59	49.10%	64.97	19.16	8.50	4.59
TSLA	2018-12-21	\$300.00	2018-08-13	2.05%	0.3562	78.00	22.59	312.90	56.68%	48.99	33.90	29.01	(11.31)	341.77	49.10%	63.23	19.28	14.77	3.31
TSLA	2018-12-21	\$300.00	2018-08-14	2.07%	0.3534	76.86	23.04	312.90	56.68%	48.83	33.74	28.03	(10.70)	332.76	49.10%	56.65	21.71	20.21	1.33
TSLA	2018-12-21	\$300.00	2018-08-15	2.06%	0.3507	58.90	26.24	312.90	56.68%	48.66	33.60	10.24	(7.36)	326.12	49.10%	51.93	23.65	6.97	2.59
TSLA	2018-12-21	\$300.00	2018-08-16	2.06%	0.3479		25.70	312.90	56.68%	48.50	33.45		(7.75)	324.18	49.10%	50.49	24.16		1.54
TSLA	2018-12-21	\$340.00	2018-08-07	2.05%	0.3726	60.00	26.05	312.90	56.68%	33.45	57.95	26.55	(31.90)	356.30	49.10%	51.44	32.55	8.56	(6.50)
TSLA	2018-12-21	\$340.00	2018-08-08	2.05%	0.3699	56.15	28.45	312.90	56.68%	33.28	57.81	22.87	(29.36)	353.59	49.10%	49.59	33.43	6.56	(4.98)
TSLA	2018-12-21	\$340.00	2018-08-09	2.05%	0.3671	48.20	39.15	312.90	56.68%	33.11	57.66	15.09	(18.51)	342.86	49.10%	42.99	37.58	5.21	1.57
TSLA	2018-12-21	\$340.00	2018-08-10	2.04%	0.3644	49.50	35.45	312.90	56.68%	32.94	57.52	16.56	(22.07)	343.59	49.10%	43.25	37.14	6.25	(1.69)
TSLA	2018-12-21	\$340.00	2018-08-13	2.05%	0.3562	49.65	34.30	312.90	56.68%	32.44	57.07	17.21	(22.77)	341.77	49.10%	41.73	37.48	7.92	(3.18)
TSLA	2018-12-21	\$340.00	2018-08-14	2.07%	0.3534	47.70	35.10	312.90	56.68%	32.28	56.90	15.42	(21.80)	332.76	49.10%	36.56	41.32	11.14	(6.22)
TSLA	2018-12-21	\$340.00	2018-08-15	2.06%	0.3507	33.75	39.95	312.90	56.68%	32.11	56.76	1.64	(16.81)	326.12		32.91	44.34	0.84	(4.39)
TSLA	2018-12-21	\$340.00	2018-08-16	2.06%	0.3479	34.73	41.03	312.90	56.68%	31.94	56.61	2.79	(15.58)	324.18	49.10%	31.78	45.16	2.95	(4.13)
TSLA	2018-12-21	\$380.00	2018-08-07	2.05%	0.3726	28.85	39.00	312.90	56.68%	21.92	86.12	6.93	(47.12)	356.30	49.10%	34.06	54.87	(5.21)	(15.87)
TSLA	2018-12-21	\$380.00	2018-08-08	2.05%	0.3699	31.20	43.51	312.90	56.68%	21.77	85.99	9.43	(42.48)	353.59	49.10%	32.60	56.13	(1.40)	(12.62)
TSLA	2018-12-21	\$380.00	2018-08-09	2.05%	0.3671	26.08	58.12	312.90	56.68%	21.61	85.86	4.47	(27.74)	342.86	49.10%	27.58	61.87	(1.50)	(3.75)
TSLA	2018-12-21	\$380.00	2018-08-10	2.04%	0.3644	27.91	55.25	312.90		21.45	85.74	6.46	(30.49)	343.59		27.73	61.33	0.18	(6.08)
TSLA	2018-12-21	\$380.00	2018-08-13	2.05%	0.3562	28.00	51.80	312.90		20.99	85.32	7.01	(33.52)	341.77		26.48	61.95	1.52	(10.15)
TSLA	2018-12-21	\$380.00	2018-08-14	2.07%	0.3534	22.00		312.90		20.84	85.17	1.16		332.76		22.67	67.15	(0.67)	
TSLA	2018-12-21	\$380.00	2018-08-15	2.06%	0.3507	17.25	59.16	312.90		20.68	85.04	(3.43)	(25.88)	326.12		20.04	71.18	(2.79)	(12.02)
TSLA	2018-12-21	\$380.00	2018-08-16	2.06%	0.3479	16.35		312.90	56.68%	20.53	84.91	(4.18)		324.18	49.10%	19.20	72.30	(2.85)	
TSLA	2018-12-21	\$420.00	2018-08-07	2.05%	0.3726	15.49		312.90	56.68%	14.15	118.05	1.34		356.30		21.90	82.41	(6.41)	
TSLA	2018-12-21	\$420.00	2018-08-08	2.05%	0.3699	14.00	65.98	312.90		14.01	117.94	(0.01)	(51.96)	353.59		20.81	84.04	(6.81)	(18.06)
TSLA	2018-12-21	\$420.00	2018-08-09	2.05%	0.3671	12.12	80.10	312.90		13.88	117.83	(1.76)	(37.73)	342.86		17.18	91.17	(5.06)	(11.07)
TSLA	2018-12-21	\$420.00	2018-08-10	2.04%	0.3644	11.90	74.75	312.90		13.75	117.73	(1.85)	(42.98)	343.59		17.26	90.56	(5.36)	(15.81)
TSLA	2018-12-21	\$420.00	2018-08-13	2.05%	0.3562	11.80	72.90	312.90		13.35	117.39	(1.55)	(44.49)	341.77		16.29	91.47	(4.49)	(18.57)
TSLA	2018-12-21	\$420.00	2018-08-14	2.07%	0.3534	9.00		312.90	56.68%	13.22	117.26	(4.22)		332.76		13.63	97.81	(4.63)	
TSLA	2018-12-21	\$420.00	2018-08-15	2.06%	0.3507	6.40		312.90		13.09	117.16	(6.69)		326.12		11.82	102.68	(5.42)	
ISLA	2018-12-21	\$420.00	2018-08-16	2.06%	0.3479	5.50		312.90	56.68%	12.96	117.05	(7.46)		324.18	49.10%	11.24	104.06	(5.74)	

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	ed Price	But-For	Option Val	ue Based or	n Direct &	Consequent	tial Effects		But-For Op	tion Value	Based on	Direct Effect	s
												Call	Put					Call	Put
					Time to			Stock	Implied			Inflation/	Inflation/	Stock	Implied			Inflation/	Inflation/
Root	Expiration	Strike	Date	Rate	Maturity	Call	Put	Price	Volatility	Call	Put	(Deflation)	(Deflation)	Price	Volatility	Call	Put	(Deflation)	(Deflation)
TSLA	2018-12-21	\$460.00	2018-08-07	2.05%	0.3726	5.30	87.10	312.90	56.68%	9.03	152.63	(3.73)	(65.53)	356.30	49.10%	13.77	113.97	(8.47)	(26.87)
TSLA	2018-12-21	\$460.00	2018-08-08	2.05%	0.3699	5.35	92.00	312.90	56.68%	8.92	152.55	(3.57)	(60.55)	353.59	49.10%	12.98	115.91	(7.63)	(23.91)
TSLA	2018-12-21	\$460.00	2018-08-09	2.05%	0.3671	4.90		312.90		8.82	152.46	(3.92)		342.86	49.10%	10.45	124.15	(5.55)	
TSLA	2018-12-21	\$460.00	2018-08-10	2.04%		4.80		312.90		8.71	152.40	(3.91)		343.59	49.10%	10.49	123.50	(5.69)	
TSLA	2018-12-21	\$460.00	2018-08-13	2.05%		3.55		312.90		8.39	152.14	(4.84)		341.77	49.10%	9.79	124.67	(6.24)	
TSLA	2018-12-21	\$460.00	2018-08-14	2.07%	0.3534	3.05		312.90		8.29	152.03	(5.24)		332.76	49.10%	8.00	131.89	(4.95)	
TSLA	2018-12-21	\$460.00	2018-08-15	2.06%		1.72		312.90		8.18	151.97	(6.46)		326.12	49.10%	6.81	137.38	(5.09)	
TSLA	2018-12-21	\$460.00	2018-08-16	2.06%	0.3479	1.70		312.90	56.68%	8.08	151.89	(6.38)		324.18	49.10%	6.42	138.95	(4.72)	
TSLA	2018-12-21	\$500.00	2018-08-07	2.05%	0.3726	2.36		312.90	56.68%	5.73	189.02	(3.37)		356.30	49.10%	8.50	148.40	(6.14)	
TSLA	2018-12-21	\$500.00	2018-08-08	2.05%	0.3699	2.00		312.90	56.68%	5.64	188.96	(3.64)		353.59	49.10%	7.95	150.58	(5.95)	
TSLA	2018-12-21	\$500.00	2018-08-09	2.05%	0.3671	1.62		312.90	56.68%	5.56	188.91	(3.94)		342.86	49.10%	6.26	159.65	(4.64)	
TSLA	2018-12-21	\$500.00	2018-08-10	2.04%	0.3644	1.39		312.90		5.48	188.87	(4.09)		343.59	49.10%	6.27	158.98	(4.88)	
TSLA	2018-12-21	\$500.00	2018-08-13	2.05%		1.43		312.90		5.23	188.69	(3.80)		341.77	49.10%	5.77	160.36	(4.34)	
TSLA	2018-12-21	\$500.00	2018-08-14	2.07%		1.10		312.90		5.16	188.61	(4.06)		332.76	49.10%	4.61	168.21	(3.51)	
TSLA	2018-12-21	\$500.00	2018-08-15	2.06%	0.3507	0.80		312.90		5.07	188.57	(4.27)		326.12	49.10%	3.86	174.14	(3.06)	
TSLA	2018-12-21	\$500.00	2018-08-16	2.06%	0.3479	0.56		312.90	56.68%	4.99	188.52	(4.43)		324.18	49.10%	3.61	175.85	(3.05)	
TSLA	2019-01-18	\$300.00	2018-08-07	2.22%	0.4493	91.35	15.25	312.90	55.39%	53.29	37.41	38.06	(22.16)	356.30	48.97%	78.53	19.25	12.82	(4.00)
TSLA	2019-01-18	\$300.00	2018-08-08	2.23%	0.4466	87.00	19.50	312.90	55.39%	53.15	37.27	33.85	(17.77)	353.59	48.97%	76.35	19.79	10.65	(0.29)
TSLA	2019-01-18	\$300.00	2018-08-09	2.24%	0.4438	78.00	27.55	312.90	55.39%	53.01	37.14	24.99	(9.59)	342.86	48.97%	68.27	22.45	9.73	5.10
TSLA	2019-01-18	\$300.00	2018-08-10	2.22%	0.4411	79.60	26.21	312.90	55.39%	52.86	37.03	26.74	(10.82)	343.59	48.97%	68.66	22.15	10.94	4.06
TSLA	2019-01-18	\$300.00	2018-08-13	2.21%	0.4329	79.50	25.58	312.90		52.42	36.66	27.08	(11.08)	341.77	48.97%	66.95	22.33	12.55	3.25
TSLA	2019-01-18		2018-08-14	2.24%		72.90	26.98	312.90		52.29	36.51	20.61	(9.53)	332.76	48.97%	60.45	24.81	12.45	2.17
TSLA	2019-01-18		2018-08-15	2.22%		63.20	28.90	312.90		52.13	36.40	11.07	(7.50)	326.12	48.97%	55.75	26.80	7.45	2.10
TSLA	2019-01-18	\$300.00	2018-08-16	2.23%	0.4247	62.90	29.70	312.90	55.39%	51.99	36.26	10.91	(6.56)	324.18	48.97%	54.33	27.32	8.57	2.38
TSLA	2019-01-18	\$340.00	2018-08-07	2.22%	0.4493	61.65	25.22	312.90	55.39%	36.88	60.60	24.77	(35.38)	356.30	48.97%	55.67	36.00	5.98	(10.78)
TSLA	2019-01-18	\$340.00	2018-08-08	2.23%	0.4466	57.30	29.90	312.90	55.39%	36.74	60.46	20.56	(30.56)	353.59	48.97%	53.84	36.87	3.46	(6.97)
TSLA	2019-01-18	\$340.00	2018-08-09	2.24%	0.4438	50.30	41.55	312.90	55.39%	36.59	60.32	13.71	(18.77)	342.86	48.97%	47.20	40.98	3.10	0.57
TSLA	2019-01-18	\$340.00	2018-08-10	2.22%	0.4411	51.38	38.04	312.90	55.39%	36.43	60.21	14.95	(22.17)	343.59	48.97%	47.47	40.57	3.91	(2.53)
TSLA	2019-01-18	\$340.00	2018-08-13	2.21%	0.4329	51.90	37.31	312.90	55.39%	35.98	59.83	15.92	(22.52)	341.77	48.97%	45.97	40.96	5.93	(3.65)
TSLA	2019-01-18	\$340.00	2018-08-14	2.24%	0.4301	46.80	39.00	312.90	55.39%	35.84	59.67	10.96	(20.67)	332.76	48.97%	40.75	44.73	6.05	(5.73)
TSLA	2019-01-18	\$340.00	2018-08-15	2.22%		39.60	43.00	312.90		35.68	59.56	3.92	(16.56)	326.12	48.97%	37.03	47.70	2.57	(4.70)
TSLA	2019-01-18	\$340.00	2018-08-16	2.23%	0.4247	37.65	44.09	312.90	55.39%	35.53	59.42	2.12	(15.33)	324.18	48.97%	35.89	48.50	1.76	(4.41)
TSLA	2019-01-18	\$380.00	2018-08-07	2.22%	0.4493	37.30	40.00	312.90	55.39%	25.12	88.44	12.18	(48.44)	356.30	48.97%	38.43	58.36	(1.13)	(18.36)
TSLA	2019-01-18	\$380.00	2018-08-08	2.23%	0.4466	34.59	45.69	312.90	55.39%	24.98	88.31	9.61	(42.62)	353.59	48.97%	36.95	59.59	(2.36)	(13.90)
TSLA	2019-01-18	\$380.00	2018-08-09	2.24%	0.4438	30.19	60.00	312.90	55.39%	24.84	88.18	5.35	(28.18)	342.86	48.97%	31.76	65.14	(1.57)	(5.14)
TSLA	2019-01-18	\$380.00	2018-08-10	2.22%	0.4411	29.41	56.50	312.90	55.39%	24.69	88.09	4.72	(31.59)	343.59	48.97%	31.93	64.64	(2.52)	(8.14)
TSLA	2019-01-18	\$380.00	2018-08-13	2.21%	0.4329	30.54	55.80	312.90	55.39%	24.27	87.74	6.27	(31.94)	341.77	48.97%	30.67	65.28	(0.13)	(9.48)
TSLA	2019-01-18	\$380.00	2018-08-14	2.24%	0.4301	25.55	53.85	312.90	55.39%	24.13	87.59	1.42	(33.74)	332.76	48.97%	26.69	70.28	(1.14)	(16.43)
TSLA	2019-01-18	\$380.00	2018-08-15	2.22%	0.4274	19.85	66.25	312.90	55.39%	23.98	87.49	(4.13)	(21.24)	326.12	48.97%	23.89	74.18	(4.04)	(7.93)
TSLA	2019-01-18	\$380.00	2018-08-16	2.23%	0.4247	18.50		312.90	55.39%	23.85	87.36	(5.35)		324.18	48.97%	23.02	75.25	(4.52)	
TSLA	2019-01-18	\$420.00	2018-08-07	2.22%	0.4493	17.00	60.00	312.90	55.39%	16.92	119.84	0.08	(59.84)	356.30	48.97%	25.98	85.51	(8.98)	(25.51)
TSLA	2019-01-18	\$420.00	2018-08-08	2.23%		16.60	66.90	312.90		16.80	119.73	(0.20)	(52.83)	353.59	48.97%	24.82	87.07	(8.22)	(20.17)
TSLA	2019-01-18	\$420.00	2018-08-09	2.24%		15.32	84.20	312.90		16.67	119.61	(1.35)	(35.41)	342.86	48.97%	20.91	93.90	(5.59)	(9.70)
TSLA	2019-01-18		2018-08-10	2.22%		14.61	81.55	312.90		16.54	119.55	(1.93)	(38.00)	343.59	48.97%	21.02	93.34	(6.41)	(11.79)
TSLA	2019-01-18	\$420.00	2018-08-13	2.21%		14.30		312.90		16.17	119.26	(1.87)		341.77	48.97%	20.02	94.25	(5.72)	
TSLA	2019-01-18	\$420.00	2018-08-14	2.24%	0.4301	11.14	83.55	312.90		16.05	119.12	(4.91)	(35.57)	332.76	48.97%	17.09	100.31	(5.95)	(16.76)
TSLA	2019-01-18	\$420.00	2018-08-15	2.22%	0.4274	7.90		312.90	55.39%	15.92	119.05	(8.02)		326.12	48.97%	15.07	104.99	(7.17)	
TSLA	2019-01-18	\$420.00	2018-08-16	2.23%	0.4247	6.96	92.90	312.90	55.39%	15.80	118.94	(8.84)	(26.04)	324.18	48.97%	14.44	106.29	(7.48)	(13.39)

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	ed Price	But-For	Option Val	ue Based or	n Direct &	Consequent	ial Effects		But-For Op	tion Value	Based on	Direct Effect	s
									-			Call	Put	-				Call	Put
					Time to			Stock	Implied			Inflation/	Inflation/	Stock	Implied			Inflation/	Inflation/
Root	Expiration	Strike	Date		Maturity	Call	Put	Price	Volatility	Call	Put	(Deflation)	(Deflation)	Price	Volatility	Call	Put	(Deflation)	(Deflation)
TSLA	2019-01-18	\$460.00	2018-08-07	2.22%	0.4493	7.00		312.90	55.39%	11.31	153.84	(4.31)		356.30	48.97%	17.27	116.41	(10.27)	
TSLA	2019-01-18	\$460.00	2018-08-08	2.23%	0.4466	7.11	99.11	312.90	55.39%	11.21	153.75	(4.10)	(54.64)	353.59	48.97%	16.41	118.26	(9.30)	(19.15)
TSLA	2019-01-18	\$460.00	2018-08-09	2.24%		6.55	111.28	312.90	55.39%	11.11	153.65	(4.56)	(42.37)	342.86	48.97%	13.55	126.14	(7.00)	(14.86)
TSLA	2019-01-18		2018-08-10	2.22%		6.07		312.90		11.00	153.61	(4.93)		343.59	48.97%	13.61	125.54	(7.54)	
TSLA	2019-01-18	\$460.00	2018-08-13	2.21%		5.66	110.28	312.90		10.69	153.40	(5.03)	(43.12)	341.77	48.97%	12.85	126.69	(7.19)	(16.41)
TSLA	2019-01-18	\$460.00	2018-08-14	2.24%	0.4301	4.35	111.78	312.90		10.59	153.27	(6.24)	(41.49)	332.76	48.97%	10.77	133.60	(6.42)	(21.82)
TSLA	2019-01-18		2018-08-15	2.22%		2.52		312.90		10.48	153.23	(7.96)		326.12	48.97%	9.36	138.89	(6.84)	
TSLA	2019-01-18	\$460.00	2018-08-16	2.23%	0.4247	2.30		312.90	55.39%	10.38	153.14	(8.08)		324.18	48.97%	8.91	140.39	(6.61)	
TSLA	2019-01-18	\$500.00	2018-08-07	2.22%	0.4493	3.20	129.09	312.90	55.39%	7.53	189.66	(4.33)	(60.57)	356.30	48.97%	11.35	150.08	(8.15)	(20.99)
TSLA	2019-01-18	\$500.00	2018-08-08	2.23%	0.4466	2.75	135.00	312.90	55.39%	7.45	189.59	(4.70)	(54.59)	353.59	48.97%	10.71	152.17	(7.96)	(17.17)
TSLA	2019-01-18	\$500.00	2018-08-09	2.24%	0.4438	2.75	149.90	312.90	55.39%	7.36	189.51	(4.61)	(39.61)	342.86	48.97%	8.68	160.88	(5.93)	(10.98)
TSLA	2019-01-18	\$500.00	2018-08-10	2.22%	0.4411	2.65		312.90	55.39%	7.28	189.50	(4.63)		343.59	48.97%	8.71	160.25	(6.06)	
TSLA	2019-01-18	\$500.00	2018-08-13	2.21%	0.4329	2.45		312.90	55.39%	7.03	189.36	(4.58)		341.77	48.97%	8.14	161.61	(5.69)	
TSLA	2019-01-18	\$500.00	2018-08-14	2.24%	0.4301	1.60		312.90	55.39%	6.95	189.25	(5.35)		332.76	48.97%	6.71	169.15	(5.11)	
TSLA	2019-01-18	\$500.00	2018-08-15	2.22%	0.4274	1.00	163.30	312.90	55.39%	6.86	189.24	(5.86)	(25.94)	326.12	48.97%	5.74	174.90	(4.74)	(11.60)
TSLA	2019-01-18	\$500.00	2018-08-16	2.23%	0.4247	1.00		312.90	55.39%	6.78	189.17	(5.78)		324.18	48.97%	5.43	176.54	(4.43)	
TSLA	2019-02-15	\$300.00	2018-08-07	2.22%	0.5260	91.00	18.00	312.90	54.62%	56.47	40.09	34.53	(22.09)	356.30	49.97%	82.65	22.87	8.35	(4.87)
TSLA	2019-02-15	\$300.00	2018-08-08	2.23%	0.5233	91.31	20.20	312.90	54.62%	56.35	39.96	34.96	(19.76)	353.59	49.97%	80.51	23.44	10.80	(3.24)
TSLA	2019-02-15	\$300.00	2018-08-09	2.24%	0.5205	88.00	30.00	312.90	54.62%	56.23	39.84	31.77	(9.84)	342.86	49.97%	72.52	26.18	15.48	3.82
TSLA	2019-02-15	\$300.00	2018-08-10	2.22%	0.5178	79.00		312.90	54.62%	56.08	39.75	22.92		343.59	49.97%	72.91	25.89	6.09	
TSLA	2019-02-15	\$300.00	2018-08-13	2.21%	0.5096		28.35	312.90	54.62%	55.68	39.41		(11.06)	341.77	49.97%	71.23	26.10		2.25
TSLA	2019-02-15	\$300.00	2018-08-14	2.24%	0.5068	82.00	28.07	312.90	54.62%	55.57	39.27	26.43	(11.20)	332.76	49.97%	64.78	28.63	17.22	(0.56)
TSLA	2019-02-15	\$300.00	2018-08-15	2.22%	0.5041	64.00	30.34	312.90	54.62%	55.42	39.18	8.58	(8.84)	326.12	49.97%	60.11	30.65	3.89	(0.31)
TSLA	2019-02-15	\$300.00	2018-08-16	2.23%	0.5014		32.50	312.90	54.62%	55.29	39.05		(6.55)	324.18	49.97%	58.70	31.18		1.32
TSLA	2019-02-15	\$340.00	2018-08-07	2.22%	0.5260	61.50		312.90	54.62%	40.19	63.34	21.31		356.30	49.97%	60.55	40.30	0.95	
TSLA	2019-02-15	\$340.00	2018-08-08	2.23%		62.75		312.90		40.06	63.21	22.69		353.59	49.97%	58.71	41.18	4.04	
TSLA	2019-02-15	\$340.00	2018-08-09	2.24%	0.5205		43.00	312.90		39.93	63.08		(20.08)	342.86	49.97%	52.04	45.24		(2.24)
TSLA	2019-02-15		2018-08-10	2.22%				312.90		39.78	62.99		(20.00)	343.59	49.97%	52.32	44.85		(2.2.)
TSLA	2019-02-15		2018-08-13	2.21%			41.64	312.90		39.36	62.65		(21.01)	341.77	49.97%	50.83	45.25		(3.61)
TSLA	2019-02-15	\$340.00	2018-08-14	2.24%		53.95	41.30	312.90		39.24	62.50	14.71	(21.20)	332.76	49.97%	45.54	48.94	8.41	(7.64)
TSLA	2019-02-15		2018-08-15	2.22%		41.74	47.25	312.90		39.09	62.40	2.65	(15.15)	326.12	49.97%	41.76	51.85	(0.02)	(4.60)
TSLA	2019-02-15		2018-08-16	2.23%		41.70	45.24	312.90		38.96	62.27	2.74	(17.03)	324.18	49.97%	40.60	52.63	1.10	(7.39)
mar.	2010 02 15	#200.00	2010 00 07	2 220/	0.5000	42.05	47.05	212.00	54.620/	20.26	00.04	14.70	(42.00)	256.20	40.050/	42.52	62.02	(0.40)	(14.07)
TSLA	2019-02-15		2018-08-07	2.22%		43.05	47.95	312.90		28.26	90.94	14.79	(42.99)	356.30	49.97%	43.53	62.82	(0.48)	(14.87)
TSLA	2019-02-15		2018-08-08	2.23%		37.50	46.80	312.90		28.13	90.82	9.37	(44.02)	353.59	49.97%	42.02	64.02	(4.52)	(17.22)
TSLA	2019-02-15	\$380.00	2018-08-09	2.24%	0.5205	24.50	64.05	312.90		28.01	90.70	((2	(26.65)	342.86	49.97%	36.64	69.38	(2.24)	(5.33)
TSLA	2019-02-15	\$380.00	2018-08-10	2.22%	0.5178	34.50		312.90		27.87	90.62	6.63		343.59	49.97%	36.84	68.90	(2.34)	
TSLA	2019-02-15	\$380.00	2018-08-13	2.21%		34.19		312.90		27.47	90.31	6.72		341.77	49.97%	35.56	69.54	(1.37)	
TSLA	2019-02-15		2018-08-14	2.24%		29.35		312.90		27.35	90.16	2.00	(22.72)	332.76	49.97%	31.39	74.34	(2.04)	
TSLA	2019-02-15		2018-08-15	2.22%		21.60	66.35	312.90		27.21	90.08	(5.40)	(23.73)	326.12	49.97%	28.43	78.09	(5.02)	(11.74)
TSLA	2019-02-15	\$380.00	2018-08-16	2.23%	0.5014	21.60		312.90	54.62%	27.08	89.95	(5.48)		324.18	49.97%	27.52	79.11	(5.92)	
TSLA	2019-02-15		2018-08-07	2.22%		21.00	84.12	312.90		19.71	121.93	1.29	(37.81)	356.30	49.97%	30.85	89.67	(9.85)	(5.55)
TSLA	2019-02-15	\$420.00	2018-08-08	2.23%		20.00	63.00	312.90		19.60	121.82	0.40	(58.82)	353.59	49.97%	29.64	91.17	(9.64)	(28.17)
TSLA	2019-02-15		2018-08-09	2.24%		17.57		312.90		19.49	121.71	(1.92)		342.86	49.97%	25.43	97.71	(7.86)	
TSLA	2019-02-15		2018-08-10	2.22%		17.72		312.90		19.36	121.66	(1.64)		343.59	49.97%	25.56	97.17	(7.84)	
TSLA	2019-02-15	\$420.00	2018-08-13	2.21%				312.90		19.00	121.40			341.77	49.97%	24.51	98.04		
TSLA	2019-02-15	\$420.00	2018-08-14	2.24%	0.5068	15.22		312.90		18.90	121.25	(3.68)		332.76	49.97%	21.32	103.82	(6.10)	
TSLA	2019-02-15		2018-08-15	2.22%		10.65		312.90		18.77	121.19	(8.12)		326.12	49.97%	19.08	108.29	(8.43)	
TSLA	2019-02-15	\$420.00	2018-08-16	2.23%	0.5014	9.80		312.90	54.62%	18.66	121.08	(8.86)		324.18	49.97%	18.38	109.53	(8.58)	

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	ed Price	But-For	Option Val	ue Based or	n Direct &	Consequent	ial Effects		But-For Op	otion Value	Based on	Direct Effect	ts
									•			Call	Put	_	•			Call	Put
				Interest	Time to			Stock	Implied			Inflation/	Inflation/	Stock	Implied			Inflation/	Inflation/
Root	Expiration	Strike	Date	Rate	Maturity	Call	Put	Price	Volatility	Call	Put	(Deflation)	(Deflation)	Price	Volatility	Call	Put	(Deflation)	(Deflation)
TSLA	2019-02-15	\$460.00	2018-08-07	2.22%	0.5260			312.90	54.62%	13.69	155.44			356.30	49.97%	21.63	119.99		
TSLA	2019-02-15	\$460.00	2018-08-08	2.23%	0.5233			312.90	54.62%	13.59	155.35			353.59	49.97%	20.68	121.75		
TSLA	2019-02-15	\$460.00	2018-08-09	2.24%				312.90		13.49	155.25			342.86	49.97%	17.47	129.28		
TSLA	2019-02-15		2018-08-10	2.22%		7.75		312.90		13.38	155.22	(5.63)		343.59	49.97%	17.55	128.70	(9.80)	
TSLA	2019-02-15	\$460.00	2018-08-13	2.21%		7.25		312.90	54.62%	13.08	155.02			341.77	49.97%	16.72	129.79	(7.00)	
TSLA	2019-02-15	\$460.00	2018-08-14	2.24%	0.5068	7.25		312.90		12.99	154.89	(5.74)		332.76	49.97%	14.33	136.37	(7.08)	
TSLA	2019-02-15		2018-08-15	2.22%		2.60		312.90		12.88	154.85	(0.19)		326.12	49.97%	12.67	141.44	(0.55)	
TSLA	2019-02-15	\$400.00	2018-08-16	2.23%	0.5014	3.60		312.90	54.62%	12.78	154.76	(9.18)		324.18	49.97%	12.15	142.86	(8.55)	
TSLA	2019-02-15	\$500.00	2018-08-07	2.22%	0.5260	8.65	124.40	312.90	54.62%	9.48	190.77	(0.83)	(66.37)	356.30	49.97%	15.05	152.94	(6.40)	(28.54)
TSLA	2019-02-15	\$500.00	2018-08-08	2.23%	0.5233	4.81		312.90	54.62%	9.40	190.69	(4.59)		353.59	49.97%	14.32	154.93	(9.51)	
TSLA	2019-02-15	\$500.00	2018-08-09	2.24%	0.5205	4.22		312.90	54.62%	9.32	190.61	(5.10)		342.86	49.97%	11.91	163.26	(7.69)	
TSLA	2019-02-15	\$500.00	2018-08-10	2.22%	0.5178	3.50		312.90	54.62%	9.23	190.61	(5.73)		343.59	49.97%	11.96	162.66	(8.46)	
TSLA	2019-02-15	\$500.00	2018-08-13	2.21%	0.5096			312.90	54.62%	8.97	190.47			341.77	49.97%	11.31	163.94		
TSLA	2019-02-15	\$500.00	2018-08-14	2.24%	0.5068			312.90	54.62%	8.90	190.35			332.76	49.97%	9.56	171.15		
TSLA	2019-02-15	\$500.00	2018-08-15	2.22%		1.65		312.90	54.62%	8.81	190.34	(7.16)		326.12	49.97%	8.36	176.68	(6.71)	
TSLA	2019-02-15	\$500.00	2018-08-16	2.23%	0.5014	1.20		312.90	54.62%	8.73	190.26	(7.53)		324.18	49.97%	7.98	178.24	(6.78)	
TSLA	2019-03-15	\$300.00	2018-08-07	2.22%	0.6027	95.50	19.00	312.90	53.92%	59.36	42.47	36.14	(23.47)	356.30	50.14%	85.98	25.70	9.52	(6.70)
TSLA	2019-03-15	\$300.00	2018-08-08	2.23%	0.6000	94.50	25.00	312.90	53.92%	59.25	42.35	35.25	(17.35)	353.59	50.14%	83.86	26.28	10.64	(1.28)
TSLA	2019-03-15	\$300.00	2018-08-09	2.24%	0.5973	79.00	33.49	312.90	53.92%	59.13	42.24	19.87	(8.75)	342.86	50.14%	75.93	29.08	3.07	4.41
TSLA	2019-03-15	\$300.00	2018-08-10	2.22%	0.5945		32.65	312.90	53.92%	59.00	42.16		(9.51)	343.59	50.14%	76.32	28.79		3.86
TSLA	2019-03-15	\$300.00	2018-08-13	2.21%		85.00	30.68	312.90		58.62	41.86	26.38	(11.18)	341.77	50.14%	74.66	29.03	10.34	1.65
TSLA	2019-03-15		2018-08-14	2.24%		80.95	30.75	312.90		58.52	41.72	22.43	(10.97)	332.76	50.14%	68.25	31.59	12.70	(0.84)
TSLA	2019-03-15		2018-08-15	2.22%		71.71	34.00	312.90		58.39	41.64	13.32	(7.64)	326.12	50.14%	63.59	33.63	8.12	0.37
TSLA	2019-03-15	\$300.00	2018-08-16	2.23%	0.5781	67.50	33.12	312.90	53.92%	58.27	41.52	9.23	(8.40)	324.18	50.14%	62.19	34.17	5.31	(1.05)
TSLA	2019-03-15	\$340.00	2018-08-07	2.22%	0.6027	63.65	36.20	312.90	53.92%	43.19	65.77	20.46	(29.57)	356.30	50.14%	64.41	43.59	(0.76)	(7.39)
TSLA	2019-03-15	\$340.00	2018-08-08	2.23%		64.40	29.00	312.90		43.07	65.65	21.33	(36.65)	353.59	50.14%	62.58	44.47	1.82	(15.47)
TSLA	2019-03-15	\$340.00	2018-08-09	2.24%		57.40		312.90		42.95	65.53	14.45		342.86	50.14%	55.87	48.49	1.53	
TSLA	2019-03-15		2018-08-10	2.22%		55.67		312.90		42.81	65.45	12.86		343.59	50.14%	56.16	48.12	(0.49)	
TSLA	2019-03-15	\$340.00	2018-08-13	2.21%	0.5863	63.55		312.90	53.92%	42.42	65.14	21.13		341.77	50.14%	54.69	48.54	8.86	
TSLA	2019-03-15	\$340.00	2018-08-14	2.24%	0.5836			312.90	53.92%	42.32	65.00			332.76	50.14%	49.35	52.17		
TSLA	2019-03-15	\$340.00	2018-08-15	2.22%	0.5808	43.40	50.35	312.90	53.92%	42.17	64.91	1.23	(14.56)	326.12	50.14%	45.51	55.03	(2.11)	(4.68)
TSLA	2019-03-15	\$340.00	2018-08-16	2.23%	0.5781	43.50	50.35	312.90	53.92%	42.05	64.79	1.45	(14.44)	324.18	50.14%	44.34	55.80	(0.84)	(5.45)
TSLA	2019-03-15	\$380.00	2018-08-07	2.22%	0.6027	41.56	48.90	312.90	53.92%	31.15	93.19	10.41	(44.29)	356.30	50.14%	47.57	66.22	(6.01)	(17.32)
TSLA	2019-03-15		2018-08-08	2.23%	0.6000	41.98	47.16	312.90		31.03	93.07	10.95	(45.91)	353.59	50.14%	46.03	67.39	(4.05)	(20.23)
TSLA	2019-03-15	\$380.00	2018-08-09	2.24%	0.5973	35.00	62.00	312.90	53.92%	30.91	92.96	4.09	(30.96)	342.86	50.14%	40.53	72.62	(5.53)	(10.62)
TSLA	2019-03-15	\$380.00	2018-08-10	2.22%	0.5945	36.45	66.82	312.90	53.92%	30.78	92.89	5.67	(26.07)	343.59	50.14%	40.74	72.17	(4.29)	(5.35)
TSLA	2019-03-15	\$380.00	2018-08-13	2.21%	0.5863	34.00		312.90	53.92%	30.40	92.61	3.60		341.77	50.14%	39.47	72.80	(5.47)	
TSLA	2019-03-15	\$380.00	2018-08-14	2.24%	0.5836	32.07		312.90	53.92%	30.30	92.46	1.77		332.76	50.14%	35.16	77.47	(3.09)	
TSLA	2019-03-15	\$380.00	2018-08-15	2.22%	0.5808			312.90	53.92%	30.16	92.39			326.12	50.14%	32.09	81.11		
TSLA	2019-03-15	\$380.00	2018-08-16	2.23%	0.5781		70.35	312.90	53.92%	30.05	92.27		(21.92)	324.18	50.14%	31.15	82.10		(11.75)
TSLA	2019-03-15	\$420.00	2018-08-07	2.22%	0.6027	21.50	64.65	312.90	53.92%	22.33	123.85	(0.83)	(59.20)	356.30	50.14%	34.76	92.88	(13.26)	(28.23)
TSLA	2019-03-15	\$420.00	2018-08-08	2.23%		22.43	72.50	312.90		22.23	123.74	0.20	(51.24)	353.59	50.14%	33.51	94.33	(11.08)	(21.83)
TSLA	2019-03-15	\$420.00	2018-08-09	2.24%		19.05	82.50	312.90	53.92%	22.12	123.63	(3.07)	(41.13)	342.86	50.14%	29.10	100.66	(10.05)	(18.16)
TSLA	2019-03-15		2018-08-10	2.22%		19.30	87.54	312.90		22.00	123.59	(2.70)	(36.05)	343.59	50.14%	29.24	100.15	(9.94)	(12.61)
TSLA	2019-03-15	\$420.00	2018-08-13	2.21%		20.22		312.90		21.66	123.35	(1.44)		341.77	50.14%	28.18	101.00	(7.96)	
TSLA	2019-03-15	\$420.00	2018-08-14	2.24%	0.5836	16.00		312.90		21.56	123.20	(5.56)		332.76	50.14%	24.79	106.57	(8.79)	
TSLA	2019-03-15		2018-08-15	2.22%		12.00	06.10	312.90		21.44	123.15	(9.44)	(26.02)	326.12	50.14%	22.40	110.90	(10.40)	(15.00)
TSLA	2019-03-15	\$420.00	2018-08-16	2.23%	0.5781	11.00	96.12	312.90	53.92%	21.33	123.04	(10.33)	(26.92)	324.18	50.14%	21.66	112.10	(10.66)	(15.98)

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	ed Price	But-For	Option Val	ue Based on	Direct &	Consequent	tial Effects		But-For O	tion Value	Based on	Direct Effect	s
									-			Call	Put					Call	Put
					Time to			Stock	Implied			Inflation/	Inflation/	Stock	Implied			Inflation/	Inflation/
Root	Expiration	Strike	Date		Maturity	Call	Put	Price	Volatility	Call		(Deflation)	(Deflation)	Price	Volatility	Call	Put	(Deflation)	(Deflation)
TSLA	2019-03-15	\$460.00	2018-08-07	2.22%	0.6027	13.40		312.90	53.92%	15.96	156.95	(2.56)		356.30	50.14%	25.21	122.80	(11.81)	
TSLA	2019-03-15	\$460.00	2018-08-08	2.23%	0.6000	10.17		312.90	53.92%	15.87	156.85	(5.70)		353.59	50.14%	24.20	124.50	(14.03)	
TSLA	2019-03-15	\$460.00	2018-08-09	2.24%	0.5973	10.25	117.72	312.90	53.92%	15.78	156.76	(5.53)	(20.00)	342.86	50.14%	20.74	131.77	(10.49)	(12.40)
TSLA	2019-03-15	\$460.00	2018-08-10	2.22%	0.5945	9.95	117.73	312.90	53.92%	15.67	156.73	(5.72)	(39.00)	343.59	50.14%	20.84	131.22	(10.89)	(13.49)
TSLA	2019-03-15	\$460.00	2018-08-13	2.21%	0.5863	10.00		312.90	53.92%	15.37	156.55	(5.37)		341.77	50.14%	19.96	132.27	(9.96)	
TSLA TSLA	2019-03-15 2019-03-15	\$460.00 \$460.00	2018-08-14 2018-08-15	2.24% 2.22%	0.5836 0.5808	7.30 5.60	127.60	312.90 312.90	53.92% 53.92%	15.28 15.18	156.41 156.38	(7.98)	(20.70)	332.76 326.12	50.14% 50.14%	17.35 15.52	138.62 143.51	(10.05) (9.92)	(15.01)
TSLA		\$460.00	2018-08-15	2.22%	0.5781	3.60	127.00	312.90	53.92%	15.18	156.29	(9.58)	(28.78)	324.18	50.14%	13.32	143.31	(9.92)	(15.91)
ISLA	2019-03-13	\$400.00	2010-00-10	2.2370	0.5761			312.90	33.9270	13.06	130.29			324.10	30.1470	14.93	144.00		
TSLA	2019-03-15	\$500.00	2018-08-07	2.22%	0.6027	8.50		312.90	53.92%	11.40	191.85	(2.90)		356.30	50.14%	18.19	155.24	(9.69)	
TSLA	2019-03-15	\$500.00	2018-08-08	2.23%	0.6000	5.05		312.90	53.92%	11.32	191.77	(6.27)		353.59	50.14%	17.39	157.16	(12.34)	
TSLA	2019-03-15	\$500.00	2018-08-09	2.24%	0.5973	5.00		312.90	53.92%	11.24	191.69	(6.24)		342.86	50.14%	14.71	165.21	(9.71)	
TSLA	2019-03-15	\$500.00	2018-08-10	2.22%	0.5945	5.00		312.90	53.92%	11.15	191.69	(6.15)		343.59	50.14%	14.78	164.63	(9.78)	
TSLA	2019-03-15	\$500.00	2018-08-13	2.21%	0.5863	3.90		312.90	53.92%	10.89	191.55	(6.99)		341.77	50.14%	14.08	165.87	(10.18)	
TSLA	2019-03-15	\$500.00	2018-08-14	2.24%	0.5836			312.90	53.92%	10.82	191.42			332.76	50.14%	12.09	172.84		
TSLA	2019-03-15	\$500.00	2018-08-15	2.22%	0.5808	2.20		312.90	53.92%	10.73	191.42	(8.53)		326.12	50.14%	10.71	178.19	(8.51)	
TSLA	2019-03-15	\$500.00	2018-08-16	2.23%	0.5781	1.85		312.90	53.92%	10.65	191.34	(8.80)		324.18	50.14%	10.28	179.69	(8.43)	
TSLA	2019-06-21	\$300.00	2018-08-07	2.44%	0.8712	94.35	28.10	312.90	51.65%	67.87	48.66	26.48	(20.56)	356.30	50.36%	96.62	34.01	(2.27)	(5.91)
TSLA	2019-06-21	\$300.00	2018-08-08	2.43%	0.8685	98.00	30.00	312.90	51.65%	67.76	48.59	30.24	(18.59)	353.59	50.36%	94.51	34.65	3.49	(4.65)
TSLA	2019-06-21	\$300.00	2018-08-09	2.43%	0.8658	89.50	41.00	312.90	51.65%	67.66	48.51	21.84	(7.51)	342.86	50.36%	86.63	37.53	2.87	3.47
TSLA	2019-06-21	\$300.00	2018-08-10	2.41%	0.8630	88.96	38.84	312.90	51.65%	67.54	48.46	21.42	(9.62)	343.59	50.36%	87.03	37.27	1.93	1.57
TSLA	2019-06-21	\$300.00	2018-08-13	2.41%	0.8548	91.00	34.70	312.90	51.65%	67.25	48.23	23.75	(13.53)	341.77	50.36%	85.44	37.55	5.56	(2.85)
TSLA	2019-06-21	\$300.00	2018-08-14	2.43%	0.8521	89.00	37.80	312.90	51.65%	67.17	48.12	21.83	(10.32)	332.76	50.36%	79.05	40.14	9.95	(2.34)
TSLA	2019-06-21	\$300.00	2018-08-15	2.44%	0.8493	73.00	41.00	312.90	51.65%	67.09	48.03	5.91	(7.03)	326.12	50.36%	74.42	42.15	(1.42)	(1.15)
TSLA	2019-06-21	\$300.00	2018-08-16	2.44%	0.8466	75.50	41.49	312.90	51.65%	66.99	47.95	8.51	(6.46)	324.18	50.36%	73.02	42.71	2.48	(1.22)
TSLA	2019-06-21	\$340.00	2018-08-07	2.44%	0.8712		48.00	312.90	51.65%	52.03	71.97		(23.97)	356.30	50.36%	76.42	52.96		(4.96)
TSLA	2019-06-21	\$340.00	2018-08-08	2.43%	0.8685	70.48	40.65	312.90	51.65%	51.91	71.91	18.57	(31.26)	353.59	50.36%	74.55	53.86	(4.07)	(13.21)
TSLA	2019-06-21	\$340.00	2018-08-09	2.43%	0.8658		50.63	312.90	51.65%	51.81	71.83		(21.20)	342.86	50.36%	67.69	57.75		(7.12)
TSLA	2019-06-21	\$340.00	2018-08-10	2.41%	0.8630	64.05	53.11	312.90	51.65%	51.69	71.79	12.36	(18.68)	343.59	50.36%	68.00	57.42	(3.95)	(4.31)
TSLA	2019-06-21	\$340.00	2018-08-13	2.41%	0.8548	65.00		312.90	51.65%	51.38	71.54	13.62		341.77	50.36%	66.56	57.86	(1.56)	
TSLA	2019-06-21	\$340.00	2018-08-14	2.43%	0.8521			312.90	51.65%	51.30	71.43			332.76	50.36%	61.05	61.33		
TSLA	2019-06-21	\$340.00	2018-08-15	2.44%	0.8493	51.00	55.00	312.90	51.65%	51.21	71.33	(0.21)	(16.33)	326.12	50.36%	57.09	64.00	(6.09)	(9.00)
TSLA	2019-06-21	\$340.00	2018-08-16	2.44%	0.8466			312.90	51.65%	51.10	71.25			324.18	50.36%	55.88	64.74		
TSLA	2019-06-21	\$380.00	2018-08-07	2.44%	0.8712	57.75	73.86	312.90	51.65%	39.75	98.85	18.00	(24.99)	356.30	50.36%	60.10	75.80	(2.35)	(1.94)
TSLA	2019-06-21	\$380.00	2018-08-08	2.43%	0.8685	46.75	57.17	312.90	51.65%	39.64	98.80	7.11	(41.63)	353.59	50.36%	58.47	76.94	(11.72)	(19.77)
TSLA	2019-06-21	\$380.00	2018-08-09	2.43%	0.8658	42.10	73.85	312.90	51.65%	39.53	98.72	2.57	(24.87)	342.86	50.36%	52.60	81.83	(10.50)	(7.98)
TSLA	2019-06-21	\$380.00	2018-08-10	2.41%	0.8630	43.60		312.90	51.65%	39.42	98.69	4.18		343.59	50.36%	52.85	81.44	(9.25)	
TSLA	2019-06-21	\$380.00	2018-08-13	2.41%	0.8548	43.85	70.00	312.90	51.65%	39.11	98.46	4.74	(28.46)	341.77	50.36%	51.57	82.05	(7.72)	(12.05)
TSLA	2019-06-21	\$380.00	2018-08-14	2.43%	0.8521			312.90	51.65%	39.03	98.34			332.76	50.36%	46.90	86.35		
TSLA	2019-06-21	\$380.00	2018-08-15	2.44%	0.8493	33.20		312.90	51.65%	38.93	98.24	(5.73)		326.12	50.36%	43.56	89.65	(10.36)	
TSLA	2019-06-21	\$380.00	2018-08-16	2.44%	0.8466	31.05		312.90	51.65%	38.83	98.16	(7.78)		324.18	50.36%	42.54	90.59	(11.49)	
TSLA	2019-06-21	\$420.00	2018-08-07	2.44%	0.8712	27.25	72.40	312.90	51.65%	30.32	128.58	(3.07)	(56.18)	356.30	50.36%	47.09	101.96	(19.84)	(29.56)
TSLA	2019-06-21	\$420.00	2018-08-08	2.43%	0.8685	29.51	75.00	312.90	51.65%	30.22	128.54	(0.71)		353.59	50.36%	45.70	103.34	(16.19)	(28.34)
TSLA	2019-06-21	\$420.00	2018-08-09	2.43%	0.8658	28.73	97.70	312.90	51.65%	30.12	128.47	(1.39)	(30.77)	342.86	50.36%	40.74	109.13	(12.01)	(11.43)
TSLA	2019-06-21	\$420.00	2018-08-10	2.41%	0.8630	26.83	93.16	312.90	51.65%	30.01	128.46	(3.18)	(35.30)	343.59	50.36%	40.93	108.70	(14.10)	(15.54)
TSLA	2019-06-21	\$420.00	2018-08-13	2.41%	0.8548	24.40	91.00	312.90	51.65%	29.72	128.26	(5.32)	(37.26)	341.77	50.36%	39.81	109.48	(15.41)	(18.48)
TSLA	2019-06-21	\$420.00	2018-08-14	2.43%	0.8521	23.09	93.00	312.90	51.65%	29.64	128.13	(6.55)	(35.13)	332.76	50.36%	35.92	114.55	(12.83)	(21.55)
TSLA	2019-06-21	\$420.00	2018-08-15	2.44%	0.8493	18.72	102.80	312.90	51.65%	29.55	128.04	(10.83)	(25.24)	326.12	50.36%	33.15	118.41	(14.43)	(15.61)
ISLA	2019-06-21	\$420.00	2018-08-16	2.44%	0.8466	17.35	104.44	312.90	51.65%	29.46	127.97	(12.11)	(23.53)	324.18	50.36%	32.29	119.52	(14.94)	(15.08)

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	ed Price	But-For	Option Val	ue Based or	n Direct &	Consequent	ial Effects		But-For Op	tion Value	Based on	Direct Effect	s
									•			Call	Put		•			Call	Put
				Interest	Time to			Stock	Implied			Inflation/	Inflation/	Stock	Implied			Inflation/	Inflation/
Root	Expiration	Strike	Date	Rate	Maturity	Call	Put	Price	Volatility	Call	Put	(Deflation)	(Deflation)	Price	Volatility	Call	Put	(Deflation)	(Deflation)
TSLA	2019-06-21	\$460.00	2018-08-07	2.44%	0.8712			312.90	51.65%	23.13	160.55			356.30	50.36%	36.83	130.85		
TSLA	2019-06-21	\$460.00	2018-08-08	2.43%	0.8685	15.60	104.45	312.90	51.65%	23.04	160.53	(7.44)	(56.08)	353.59	50.36%	35.65	132.45	(20.05)	(28.00)
TSLA	2019-06-21	\$460.00	2018-08-09	2.43%	0.8658	16.45		312.90	51.65%	22.95	160.47	(6.50)		342.86	50.36%	31.50	139.07	(15.05)	
TSLA	2019-06-21	\$460.00	2018-08-10	2.41%			121.55	312.90		22.85	160.48		(38.93)	343.59	50.36%	31.65	138.59		(17.04)
TSLA	2019-06-21	\$460.00	2018-08-13	2.41%				312.90		22.59	160.31			341.77	50.36%	30.69	139.54		
TSLA	2019-06-21	\$460.00	2018-08-14	2.43%	0.8521		122.77	312.90		22.51	160.18	(12.02)	(2(22)	332.76	50.36%	27.46	145.28	(15.50)	(15.07)
TSLA	2019-06-21	\$460.00	2018-08-15	2.44%		9.60	133.77	312.90		22.43	160.09	(12.83)	(26.32)	326.12	50.36%	25.19	149.64	(15.59)	(15.87)
TSLA	2019-06-21	\$460.00	2018-08-16	2.44%	0.8466	9.80		312.90	51.65%	22.34	160.03	(12.54)		324.18	50.36%	24.48	150.89	(14.68)	
TSLA	2019-06-21	\$500.00	2018-08-07	2.44%	0.8712	9.00		312.90	51.65%	17.67	194.25	(8.67)		356.30	50.36%	28.78	161.97	(19.78)	
TSLA	2019-06-21	\$500.00	2018-08-08	2.43%		9.15	132.00	312.90		17.59	194.24	(8.44)	(62.24)	353.59	50.36%	27.79	163.76	(18.64)	(31.76)
TSLA	2019-06-21	\$500.00	2018-08-09	2.43%		9.35	151.00	312.90		17.51	194.20	(8.16)	(43.20)	342.86	50.36%	24.35	171.08	(15.00)	(20.08)
TSLA	2019-06-21	\$500.00	2018-08-10	2.41%	0.8630	9.01		312.90	51.65%	17.42	194.22	(8.41)		343.59	50.36%	24.46	170.58	(15.45)	
TSLA	2019-06-21	\$500.00	2018-08-13	2.41%	0.8548	7.50		312.90	51.65%	17.18	194.09	(9.68)		341.77	50.36%	23.64	171.67	(16.14)	
TSLA	2019-06-21	\$500.00	2018-08-14	2.43%	0.8521			312.90	51.65%	17.12	193.97			332.76	50.36%	21.00	177.99		
TSLA	2019-06-21	\$500.00	2018-08-15	2.44%	0.8493	4.80		312.90	51.65%	17.04	193.88	(12.24)		326.12	50.36%	19.14	182.77	(14.34)	
TSLA	2019-06-21	\$500.00	2018-08-16	2.44%	0.8466	4.60		312.90	51.65%	16.96	193.84	(12.36)		324.18	50.36%	18.56	184.16	(13.96)	
TSLA	2019-08-16	\$300.00	2018-08-07	2.44%	1.0247	96.00	30.00	312.90	50.88%	72.20	51.88	23.80	(21.88)	356.30	50.63%	102.14	38.43	(6.14)	(8.43)
TSLA	2019-08-16	\$300.00	2018-08-08	2.43%	1.0219		32.80	312.90	50.88%	72.09	51.83		(19.03)	353.59	50.63%	100.04	39.09		(6.29)
TSLA	2019-08-16	\$300.00	2018-08-09	2.43%	1.0192	90.00	42.17	312.90	50.88%	72.00	51.76	18.00	(9.59)	342.86	50.63%	92.18	41.98	(2.18)	0.19
TSLA	2019-08-16	\$300.00	2018-08-10	2.41%	1.0164			312.90	50.88%	71.89	51.73			343.59	50.63%	92.58	41.73		
TSLA	2019-08-16	\$300.00	2018-08-13	2.41%	1.0082	89.36		312.90		71.62	51.52	17.74		341.77	50.63%	91.01	42.03	(1.65)	
TSLA	2019-08-16		2018-08-14	2.43%		89.83	41.04	312.90		71.56	51.41	18.27	(10.37)	332.76	50.63%	84.61	44.61	5.22	(3.57)
TSLA	2019-08-16		2018-08-15	2.44%	1.0027	77.45	43.74	312.90		71.48	51.33	5.97	(7.59)	326.12	50.63%	79.98	46.61	(2.53)	(2.87)
TSLA	2019-08-16	\$300.00	2018-08-16	2.44%	1.0000	79.00		312.90	50.88%	71.39	51.26	7.61		324.18	50.63%	78.58	47.16	0.42	
TSLA	2019-08-16	\$340.00	2018-08-07	2.44%	1.0247		53.50	312.90	50.88%	56.55	75.25		(21.75)	356.30	50.63%	82.58	57.89		(4.39)
TSLA	2019-08-16	\$340.00	2018-08-08	2.43%	1.0219		41.00	312.90	50.88%	56.44	75.20		(34.20)	353.59	50.63%	80.70	58.77		(17.77)
TSLA	2019-08-16	\$340.00	2018-08-09	2.43%	1.0192			312.90	50.88%	56.35	75.13			342.86	50.63%	73.76	62.59		
TSLA	2019-08-16	\$340.00	2018-08-10	2.41%	1.0164			312.90	50.88%	56.23	75.10			343.59	50.63%	74.09	62.28		
TSLA	2019-08-16	\$340.00	2018-08-13	2.41%	1.0082	67.70		312.90	50.88%	55.95	74.89	11.75		341.77	50.63%	72.66	62.73	(4.96)	
TSLA	2019-08-16	\$340.00	2018-08-14	2.43%	1.0055			312.90	50.88%	55.88	74.77			332.76	50.63%	67.07	66.10		
TSLA	2019-08-16	\$340.00	2018-08-15	2.44%		54.80	58.35	312.90	50.88%	55.80	74.68	(1.00)	(16.33)	326.12	50.63%	63.04	68.70	(8.24)	(10.35)
TSLA	2019-08-16	\$340.00	2018-08-16	2.44%	1.0000		61.95	312.90	50.88%	55.71	74.61		(12.66)	324.18	50.63%	61.81	69.43		(7.48)
TSLA	2019-08-16	\$380.00	2018-08-07	2.44%			55.00	312.90	50.88%	44.23	101.94		(46.94)	356.30	50.63%	66.57	80.88		(25.88)
TSLA	2019-08-16	\$380.00	2018-08-08	2.43%	1.0219	52.54	57.50	312.90	50.88%	44.12	101.90	8.42	(44.40)	353.59	50.63%	64.91	82.00	(12.37)	(24.50)
TSLA	2019-08-16	\$380.00	2018-08-09	2.43%	1.0192	46.00		312.90	50.88%	44.03	101.83	1.97		342.86	50.63%	58.87	86.71	(12.87)	
TSLA	2019-08-16	\$380.00	2018-08-10	2.41%	1.0164	45.80	76.25	312.90	50.88%	43.92	101.82	1.88	(25.57)	343.59	50.63%	59.14	86.35	(13.34)	(10.10)
TSLA	2019-08-16	\$380.00	2018-08-13	2.41%		44.65		312.90	50.88%	43.64	101.61	1.01		341.77	50.63%	57.85	86.96	(13.20)	
TSLA	2019-08-16		2018-08-14	2.43%		40.85		312.90	50.88%	43.57	101.49	(2.72)		332.76	50.63%	53.03	91.09	(12.18)	
TSLA	2019-08-16		2018-08-15	2.44%		35.34	02.46	312.90	50.88%	43.48	101.39	(8.14)		326.12	50.63%	49.56	94.26	(14.22)	(12.70)
TSLA	2019-08-16	\$380.00	2018-08-16	2.44%	1.0000		82.46	312.90	50.88%	43.39	101.32		(18.86)	324.18	50.63%	48.50	95.16		(12.70)
TSLA	2019-08-16		2018-08-07	2.44%		29.00		312.90		34.59	131.31	(5.59)		356.30	50.63%	53.58	106.90	(24.58)	
TSLA	2019-08-16	\$420.00	2018-08-08	2.43%		33.52	00.07	312.90	50.88%	34.49	131.29	(0.97)	(21.25)	353.59	50.63%	52.13	108.24	(18.61)	(12.02)
TSLA	2019-08-16		2018-08-09	2.43%		31.58	99.87	312.90		34.40	131.22	(2.82)	(31.35)	342.86	50.63%	46.93	113.79	(15.35)	(13.92)
TSLA	2019-08-16		2018-08-10	2.41%		30.01	97.50	312.90		34.30	131.23	(4.29)	(33.73)	343.59	50.63%	47.14	113.39	(17.13)	(15.89)
TSLA TSLA	2019-08-16 2019-08-16	\$420.00 \$420.00	2018-08-13 2018-08-14	2.41% 2.43%	1.0082 1.0055	30.12 25.15	93.50	312.90 312.90		34.03 33.96	131.04 130.91	(3.91) (8.81)	(37.54)	341.77 332.76	50.63% 50.63%	46.00 41.88	114.14 118.98	(15.88) (16.73)	(20.64)
TSLA	2019-08-16		2018-08-14	2.44%		23.13	106.05	312.90	50.88%	33.88	130.91	(12.78)	(24.77)	326.12	50.63%	38.94	122.67	(17.84)	(16.62)
	2019-08-16		2018-08-15	2.44%		20.20	100.03	312.90		33.79	130.82	(13.59)	(23.08)	324.18	50.63%	38.03	123.73	(17.83)	(16.05)
IDLA	2017 00 10	\$ 120.00	2310 00 10	2.11/0	2.0000	20.20	107.00	312.70	50.0070	33.17	150.70	(15.57)	(23.00)	32 1.10	30.0370	50.05	123.73	(17.03)	(10.03)

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Trade	ed Price	But-For	Option Val	ue Based or	n Direct &	Consequent	ial Effects		But-For Op	tion Value	Based on	Direct Effect	s
									•			Call	Put		•			Call	Put
				Interest	Time to			Stock	Implied			Inflation/	Inflation/	Stock	Implied			Inflation/	Inflation/
Root	Expiration	Strike	Date		Maturity	Call	Put	Price	Volatility	Call	Put	(Deflation)	(Deflation)	Price	Volatility	Call	Put	(Deflation)	(Deflation)
TSLA	2019-08-16	\$460.00	2018-08-07	2.44%	1.0247			312.90	50.88%	27.08	162.82			356.30	50.63%	43.10	135.45		
TSLA	2019-08-16	\$460.00	2018-08-08	2.43%	1.0219			312.90	50.88%	26.99	162.81			353.59	50.63%	41.85	136.98		
TSLA	2019-08-16	\$460.00	2018-08-09	2.43%	1.0192	21.00		312.90	50.88%	26.91	162.75	(5.91)		342.86	50.63%	37.41	143.29	(16.41)	
TSLA	2019-08-16		2018-08-10	2.41%		20.00		312.90	50.88%	26.81	162.77	(6.81)		343.59	50.63%	37.58	142.86	(17.58)	
TSLA	2019-08-16	\$460.00	2018-08-13	2.41%		17.80		312.90	50.88%	26.56	162.61	(8.76)		341.77	50.63%	36.57	143.76	(18.77)	
TSLA	2019-08-16	\$460.00	2018-08-14	2.43%	1.0055	15.50		312.90		26.49	162.49	(10.99)		332.76	50.63%	33.08	149.22	(17.58)	
TSLA	2019-08-16		2018-08-15	2.44%				312.90	50.88%	26.42	162.39			326.12	50.63%	30.61	153.37		
TSLA	2019-08-16	\$460.00	2018-08-16	2.44%	1.0000			312.90	50.88%	26.33	162.34			324.18	50.63%	29.84	154.56		
TSLA	2019-08-16	\$500.00	2018-08-07	2.44%	1.0247	24.06		312.90	50.88%	21.25	196.00	2.81		356.30	50.63%	34.70	166.05	(10.64)	
TSLA	2019-08-16	\$500.00	2018-08-08	2.43%	1.0219	14.00		312.90	50.88%	21.16	196.00	(7.16)		353.59	50.63%	33.62	167.77	(19.62)	
TSLA	2019-08-16	\$500.00	2018-08-09	2.43%	1.0192	13.00	153.33	312.90	50.88%	21.09	195.95	(8.09)	(42.62)	342.86	50.63%	29.84	174.75	(16.84)	(21.42)
TSLA	2019-08-16	\$500.00	2018-08-10	2.41%	1.0164	12.00		312.90	50.88%	21.00	195.99	(9.00)		343.59	50.63%	29.98	174.29	(17.98)	
TSLA	2019-08-16	\$500.00	2018-08-13	2.41%	1.0082	10.50	155.00	312.90	50.88%	20.77	195.86	(10.27)	(40.86)	341.77	50.63%	29.10	175.33	(18.60)	(20.33)
TSLA	2019-08-16	\$500.00	2018-08-14	2.43%	1.0055	9.30	158.65	312.90	50.88%	20.71	195.73	(11.41)	(37.08)	332.76	50.63%	26.16	181.34	(16.86)	(22.69)
TSLA	2019-08-16	\$500.00	2018-08-15	2.44%	1.0027	6.90		312.90	50.88%	20.64	195.65	(13.74)		326.12	50.63%	24.09	185.88	(17.19)	
TSLA	2019-08-16	\$500.00	2018-08-16	2.44%	1.0000	7.10		312.90	50.88%	20.56	195.60	(13.46)		324.18	50.63%	23.44	187.20	(16.34)	
TSLA	2020-01-17	\$300.00	2018-08-07	2.44%	1.4466	108.00	34.00	312.90	48.65%	81.57	58.26	26.43	(24.26)	356.30	50.52%	114.74	48.04	(6.74)	(14.04)
TSLA	2020-01-17	\$300.00	2018-08-08	2.43%	1.4438	108.00	40.20	312.90	48.65%	81.48	58.24	26.52	(18.04)	353.59	50.52%	112.64	48.71	(4.64)	(8.51)
TSLA	2020-01-17	\$300.00	2018-08-09	2.43%	1.4411	96.00	50.05	312.90	48.65%	81.41	58.18	14.59	(8.13)	342.86	50.52%	104.75	51.57	(8.75)	(1.52)
TSLA	2020-01-17	\$300.00	2018-08-10	2.41%	1.4384	95.28	48.42	312.90	48.65%	81.30	58.18	13.98	(9.76)	343.59	50.52%	105.16	51.35	(9.88)	(2.93)
TSLA	2020-01-17	\$300.00	2018-08-13	2.41%	1.4301	98.00	46.10	312.90	48.65%	81.09	58.02	16.91	(11.92)	341.77	50.52%	103.63	51.69	(5.63)	(5.59)
TSLA	2020-01-17	\$300.00	2018-08-14	2.43%	1.4274	90.00	47.40	312.90	48.65%	81.05	57.92	8.95	(10.52)	332.76	50.52%	97.19	54.21	(7.19)	(6.81)
TSLA	2020-01-17	\$300.00	2018-08-15	2.44%	1.4247	84.00	50.64	312.90	48.65%	81.00	57.84	3.00	(7.20)	326.12	50.52%	92.51	56.14	(8.51)	(5.50)
TSLA	2020-01-17	\$300.00	2018-08-16	2.44%	1.4219	83.00	52.10	312.90	48.65%	80.93	57.79	2.07	(5.69)	324.18	50.52%	91.10	56.69	(8.10)	(4.59)
TSLA	2020-01-17	\$340.00	2018-08-07	2.44%	1.4466	78.55	50.35	312.90	48.65%	66.36	81.66	12.19	(31.31)	356.30	50.52%	96.48	68.39	(17.93)	(18.04)
TSLA	2020-01-17	\$340.00	2018-08-08	2.43%		84.15	52.85	312.90	48.65%	66.27	81.64	17.88	(28.79)	353.59	50.52%	94.57	69.25	(10.42)	(16.40)
TSLA	2020-01-17	\$340.00	2018-08-09	2.43%		75.00	67.99	312.90		66.19	81.59	8.81	(13.60)	342.86	50.52%	87.45	72.89	(12.45)	(4.90)
TSLA	2020-01-17		2018-08-10	2.41%		72.00	64.00	312.90		66.08	81.60	5.92	(17.60)	343.59	50.52%	87.80	72.62	(15.80)	(8.62)
TSLA	2020-01-17		2018-08-13	2.41%			58.65	312.90		65.86	81.43		(22.78)	341.77	50.52%	86.38	73.09		(14.44)
TSLA	2020-01-17	\$340.00	2018-08-14	2.43%	1.4274	69.50	61.70	312.90	48.65%	65.81	81.32	3.69	(19.62)	332.76	50.52%	80.61	76.26	(11.11)	(14.56)
TSLA	2020-01-17		2018-08-15	2.44%		60.00	67.50	312.90	48.65%	65.75	81.23	(5.75)	(13.73)	326.12	50.52%	76.42	78.69	(16.42)	(11.19)
TSLA	2020-01-17	\$340.00	2018-08-16	2.44%	1.4219	58.10	70.00	312.90	48.65%	65.68	81.18	(7.58)	(11.18)	324.18	50.52%	75.16	79.38	(17.06)	(9.38)
TSLA	2020-01-17	\$380.00	2018-08-07	2.44%	1.4466	61.70	61.00	312.90	48.65%	54.04	107.96	7.66	(46.96)	356.30	50.52%	81.15	91.67	(19.45)	(30.67)
TSLA	2020-01-17	\$380.00	2018-08-08	2.43%	1.4438	59.00	69.10	312.90		53.95	107.94	5.05	(38.84)	353.59	50.52%	79.43	92.73	(20.43)	(23.63)
TSLA	2020-01-17	\$380.00	2018-08-09	2.43%	1.4411	53.94	87.35	312.90	48.65%	53.87	107.89	0.07	(20.54)	342.86	50.52%	73.05	97.11	(19.11)	(9.76)
TSLA	2020-01-17	\$380.00	2018-08-10	2.41%	1.4384	53.75	83.00	312.90	48.65%	53.77	107.91	(0.02)	(24.91)	343.59	50.52%	73.35	96.81	(19.60)	(13.81)
TSLA	2020-01-17	\$380.00	2018-08-13	2.41%	1.4301	52.00	79.30	312.90	48.65%	53.54	107.76	(1.54)	(28.46)	341.77	50.52%	72.05	97.40	(20.05)	(18.10)
TSLA	2020-01-17	\$380.00	2018-08-14	2.43%	1.4274	48.32	81.00	312.90	48.65%	53.49	107.63	(5.17)	(26.63)	332.76	50.52%	66.91	101.20	(18.59)	(20.20)
TSLA	2020-01-17	\$380.00	2018-08-15	2.44%	1.4247	41.50	82.50	312.90	48.65%	53.43	107.54	(11.93)	(25.04)	326.12	50.52%	63.20	104.10	(21.70)	(21.60)
TSLA	2020-01-17	\$380.00	2018-08-16	2.44%	1.4219	42.10	88.70	312.90	48.65%	53.35	107.49	(11.25)	(18.79)	324.18	50.52%	62.07	104.93	(19.97)	(16.23)
TSLA	2020-01-17	\$420.00	2018-08-07	2.44%	1.4466	37.00	85.30	312.90	48.65%	44.09	136.62	(7.09)	(51.32)	356.30	50.52%	68.34	117.48	(31.34)	(32.18)
TSLA	2020-01-17	\$420.00	2018-08-08	2.43%	1.4438	38.50	88.50	312.90	48.65%	44.00	136.62	(5.50)	(48.12)	353.59	50.52%	66.79	118.72	(28.29)	(30.22)
TSLA	2020-01-17	\$420.00	2018-08-09	2.43%	1.4411	39.22	110.20	312.90	48.65%	43.93	136.57	(4.71)	(26.37)	342.86	50.52%	61.11	123.80	(21.89)	(13.60)
TSLA	2020-01-17	\$420.00	2018-08-10	2.41%	1.4384	34.28	105.02	312.90	48.65%	43.82	136.61	(9.54)	(31.59)	343.59	50.52%	61.37	123.47	(27.09)	(18.45)
TSLA	2020-01-17	\$420.00	2018-08-13	2.41%	1.4301	34.13	100.00	312.90	48.65%	43.60	136.47	(9.47)	(36.47)	341.77	50.52%	60.18	124.18	(26.05)	(24.18)
TSLA	2020-01-17	\$420.00	2018-08-14	2.43%	1.4274	31.39	100.00	312.90	48.65%	43.55	136.33	(12.16)	(36.33)	332.76	50.52%	55.64	128.56	(24.25)	(28.56)
TSLA	2020-01-17		2018-08-15	2.44%		27.25	113.30	312.90	48.65%	43.49	136.24	(16.24)	(22.94)	326.12	50.52%	52.36	131.89	(25.11)	(18.59)
TSLA	2020-01-17	\$420.00	2018-08-16	2.44%	1.4219	28.20	114.10	312.90	48.65%	43.41	136.19	(15.21)	(22.09)	324.18	50.52%	51.36	132.86	(23.16)	(18.76)

Case 3:18-cv-04865-EMC Document 527-1 Filed 01/03/23 Page 45 of 62

Appendix 8(a): Calculation of End-of-Day Artificial Inflation (Deflation) in Tesla Options (Strike prices of \$300, \$340, \$380, \$420, \$460, and \$500)

						Last Traded Price But-For Option Value Based on Direct & Consequential Effects								But-For Op	tion Value	Based on	Direct Effect	s	
				Interest	Time to			Stock	Implied			Call Inflation/	Put Inflation/	Stock	Implied			Call Inflation/	Put Inflation/
Root	Expiration	Strike	Date	Rate	Maturity	Call	Put	Price	Volatility	Call	Put	(Deflation)	(Deflation)	Price	Volatility	Call	Put	(Deflation)	(Deflation)
TSLA	2020-01-17	\$460.00	2018-08-07	2.44%	1.4466	24.00	125.00	312.90	48.65%	36.06	167.20	(12.06)	(42.20)	356.30	50.52%	57.65	145.39	(33.65)	(20.39)
TSLA	2020-01-17	\$460.00	2018-08-08	2.43%	1.4438	28.00	115.05	312.90	48.65%	35.97	167.21	(7.97)	(52.16)	353.59	50.52%	56.26	146.81	(28.26)	(31.76)
TSLA	2020-01-17	\$460.00	2018-08-09	2.43%	1.4411	27.90		312.90	48.65%	35.90	167.17	(8.00)		342.86	50.52%	51.22	152.53	(23.32)	
TSLA	2020-01-17	\$460.00	2018-08-10	2.41%	1.4384	26.18		312.90	48.65%	35.81	167.23	(9.63)		343.59	50.52%	51.44	152.18	(25.26)	
TSLA	2020-01-17	\$460.00	2018-08-13	2.41%	1.4301			312.90	48.65%	35.59	167.10			341.77	50.52%	50.37	153.01		
TSLA	2020-01-17	\$460.00	2018-08-14	2.43%	1.4274	18.60		312.90	48.65%	35.54	166.96	(16.94)		332.76	50.52%	46.36	157.92	(27.76)	
TSLA	2020-01-17	\$460.00	2018-08-15	2.44%	1.4247	18.50		312.90	48.65%	35.48	166.86	(16.98)		326.12	50.52%	43.48	161.65	(24.98)	
TSLA	2020-01-17	\$460.00	2018-08-16	2.44%	1.4219	18.80		312.90	48.65%	35.41	166.82	(16.61)		324.18	50.52%	42.60	162.73	(23.80)	
TSLA	2020-01-17	\$500.00	2018-08-07	2.44%	1.4466	19.00	145.00	312.90	48.65%	29.57	199.33	(10.57)	(54.33)	356.30	50.52%	48.72	175.08	(29.72)	(30.08)
TSLA	2020-01-17	\$500.00	2018-08-08	2.43%	1.4438	20.20	146.50	312.90	48.65%	29.49	199.35	(9.29)	(52.85)	353.59	50.52%	47.48	176.65	(27.28)	(30.15)
TSLA	2020-01-17	\$500.00	2018-08-09	2.43%	1.4411	19.15	167.00	312.90	48.65%	29.43	199.32	(10.28)	(32.32)	342.86	50.52%	43.03	182.97	(23.88)	(15.97)
TSLA	2020-01-17	\$500.00	2018-08-10	2.41%	1.4384	16.50	164.00	312.90	48.65%	29.34	199.40	(12.84)	(35.40)	343.59	50.52%	43.21	182.59	(26.71)	(18.59)
TSLA	2020-01-17	\$500.00	2018-08-13	2.41%	1.4301	15.70	159.00	312.90	48.65%	29.14	199.29	(13.44)	(40.29)	341.77	50.52%	42.25	183.53	(26.55)	(24.53)
TSLA	2020-01-17	\$500.00	2018-08-14	2.43%	1.4274	12.75	159.00	312.90	48.65%	29.09	199.14	(16.34)	(40.14)	332.76	50.52%	38.72	188.92	(25.97)	(29.92)
TSLA	2020-01-17	\$500.00	2018-08-15	2.44%	1.4247	11.80	173.95	312.90	48.65%	29.03	199.04	(17.23)	(25.09)	326.12	50.52%	36.20	193.00	(24.40)	(19.05)
TSLA	2020-01-17	\$500.00	2018-08-16	2.44%	1.4219	12.25	178.00	312.90	48.65%	28.96	199.01	(16.71)	(21.01)	324.18	50.52%	35.43	194.19	(23.18)	(16.19)

Exhibit D

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Page 1 (THE FOLLOWING IS A ROUGH DRAFT ONLY AND ² NOT A FINAL TRANSCRIPT.) THE TECHNICIAN: We are now on the

record. Today's date is January 3rd, 2023, and the time is 2:59 p.m. Eastern.

This is the recorded video

deposition of Steven Heston, Volume II, In

The Matter Of In Re: Tesla, Inc.

Securities Litigation, taken in the United

States District Court for the Northern

District of California, Case No.

18-cv-04865-EMC.

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My name is James Jarmon from Everest Court Reporting, and I am the video specialist.

The court reporter today is Allison Hall, also from Everest Court Reporting.

All counsel appearing today will be noted on the stenographic record.

Will the court reporter please swear in the witness?

STEVEN HESTON.

having first been duly sworn,

testified as follows: 24

EXAMINATION

BY MR. ALDEN:

Q. Professor Heston, good afternoon. My name is Anthony Alden. I am with the firm Quinn Emanuel and we represent the Defendants in this case.

Is there any reason why you can't give truthful testimony today?

- A. I'm sorry. I'm adjusting my sound here. Is there any reason why it might be untruthful? Is that the question.
- O. Why you can't give truthful testimony today?
- 13 A. No, I -- there's no reason why I 14 can't be truthful.
 - Q. Okay. And there are two attorneys sitting in the room with you; is that correct?
 - A. I can't see them both, but, yes, there are two here.
- 19 Q. Okay. And can we agree that while you're giving testimony, you won't communicate 21 with those attorneys? 22
 - A. Yes, we can agree on that.
 - Q. Okay. Now, you would agree with me that the prices for exchange traded stock options change throughout the day?

Page 3 That they change through the day? Sometimes, they do.

Q. Yeah. That's quite often the case?

A. Yes.

- Q. They can change as quickly as by the minute?
 - A. Yes, they can.

And they can change for all kinds of O. reasons, right, such as changes in market liquidity, macroeconomic events, industry news coming out.

Would you agree with that?

- A. I don't have an expert opinion on why they change generally or in specific cases, but, yes, prices changing often in conjunction with many events.
- Q. Now, you recall that this case is about -- or at least in part about a tweet that Elon Musk issued at 12:48 p.m. Eastern on August 7 of 2018?
 - A. Yes, I'm aware of this.
- 22 Q. And if I refer to that as Mr. Musk's 2023, you'll know what I'm talking about?

Yes.

Q. Okay. Now, if Mr. Musk hadn't

Page 4

Tweeted, you wouldn't expect all trades in a given Tesla option to happen at exactly the same price throughout the day, right?

- A. Let me understand that, especially because my volume was low. If he had not traded, I would not expect --
- Q. If Mr. Musk has never issued his tweet on August 7th, and options just kept trading, you wouldn't have expected those options to the same option of a given maturity to trade at the same price throughout a given day.
- That's right. On other days when he did not tweet, the option prices changed, so if he had not tweeted on that day, they still probably would have changed.
- Q. And when you expect -- after Mr. Musk tweeted, would you expect that tweet to have impacted prices for the same option differently throughout a given day?
- A. I have no particular expert opinion on why and when any particular information affected prices.
- Q. Okay. Now, you, in your November 8, 2021 report, you proposed what you considered

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to be a reliable, reasonable and robust method for calculating damages to option holders in this case.

Is that fair to say?

A. Let me take a look at the report and.

MR. PORRITT: If you want to look at the report, then ask to look at the report.

THE WITNESS: All right. May I look at the report?

- Q. (By Mr. Alden) Sure. I believe it's already been marked at your last deposition as exhibit 368. If you want to look at page 61, paragraph 6 point -- subheading 6.3.
 - A. Page 61.

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- Q. Let me -- let me ask you this while you're looking. You're not able to say, without looking at your report, whether the moth dolling proposed there for calculating options damages was reliable, reasonable, and robust?
- A. Well, you mentioned a report with a particular date and I want to make sure I understand which report you're referring to

since I submitted a supplementary report. So this is my original one from November 8th. Yes, I submitted this report with the opinion that I have a reasonable and reliable methodology.

- Q. And you call that methodology an -- or you characterized it as an impact quantum methodology, correct?
- A. I think I called it quantum impact or this impact quantum. Yes, that's right.
- Q. Okay. And are you aware that the Court rejected part of your methodology?

MR. PORRITT: Object to form. That totally misstates what the Court did.

You can answer the question.

THE WITNESS: I can answer? Well, I'm not aware that they objected. I -- I do believe that counsel on both sides agreed to use a different or modified version of the Black-Scholes formula and that the judge ordered a report so that I submitted a second supplementary report.

I'm not aware -- I don't know the legal characterization and don't recall it as an objection.

Q. (By Mr. Alden) Okay. Well, I'll represent to you that certainly defendants never agreed to the use of any other data. But be that as it may, are you aware that the Court said, and I quote, there are substantial questions regarding Professor Heston's use of adjusted crisis rather than the actual observed trading data for each individual stock option, end quote?

Are you aware of that?

MR. PORRITT: I'm going to object to form. What are you reading from?

THE WITNESS: The judge's order.

MR. PORRITT: My question is for him.

THE WITNESS: Sorry.

- Q. (By Mr. Alden) You can answer the question.
 - A. All right. Do you want to answer Nick's question or...

MR. ALDEN: No, I don't have much time, so I want to keep going.

Are you aware that that's what the Court said.

THE WITNESS: Yes, I do recall

Page 8

reading that.

Q. (By Mr. Alden) Okay. You're aware that the Coulter said, and they I quote,
Professor Heston's decision to use theoretical prices derived from straddles rather than the actually market price for each sanctuary city la stock option appears to be unprecedented and poses serious doubt of issues, end quote. Are you aware that the court said that?

MR. PORRITT: I'm going is to reject to the form. I'd like you to refer the witness to the actual order instead of cherry-picking. It would be helpful.

THE WITNESS: It would help because I'm not sure of the exact wording and so I -- I can't exactly agree to your entire either defeat or paraphrase.

- Q. Have you --
- A. I do recall the Court discussing issues and if you give me time to look at the --
- Q. You reviewed the Court's order though, correct?
 - A. Excuse me?
 - Q. You previously said that you had

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Page 9 reviewed the order that I was reading from, correct?

- A. I -- I reviewed them, I did not memorize them.
 - Q. Okay.

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MR. ALDEN: Now, I'd like to mark as consistently 442 what I labeled as proposed form.

MR. PORRITT: So, Anthony, we're having difficulty hearing you. It's a bit muffled. I don't know if that's garbled on your end.

MR. ALDEN: Do you want to go off the record for a minute and test it?

MR. PORRITT: No, it's better with your head up. I think when you're head is down a little bit, it's just a little -- a few words get lost. That's all.

(THEREUPON, Exhibit 442 was marked for identification.)

21 Q. (By Mr. Alden) What is marked as 22 Exhibit 442 is Plaintiff's submission of revised proposed verdict form.

And have you ever reviewed this document, Professor Heston?

A. Let me see. I believe so.

O. Okay.

A. Oh, I can scroll through it? All right. Let me --

- Q. And if you -- if you go to page -what's numbered at the bottom as page 3, line 7.
 - A. So where do I find page 3, line 7?
 - And you see the passage that begins 'consistent with this ruling"?

11 And I'll just read it. "Plaintiff 12 proposes that damages for investors in Tesla 13 stock options be calculated using the 14 out-of-pocket methodology using the 15 Black-Scholes-Merton model to calculate the 16 but-for price for Tesla stock options and this 17 but-for price should be calculated using the 18 but-for price of Tesla stock as determined by 19 the jury at trial and the actual observed 20 implied volatility as reported by the CBOE 21 Exchange on the date the option was transacted during the class period." 22 23

Do you see that?

- A. Yes, I see that.
- Q. Is that a methodology you proposed?

A. Yes.

And do you consider that methodology O. to be a reasonable, reliable, and robust method of calculating options damages in this case?

Yes, I do. A.

Did you do anything or do you know -- did either -- I'll strike that.

Do you know whether anyone --

- A. Do I know what, please?
- Q. I'll -- I'll start again.

Did you do any comparison of the 12 damages numbers generated under your original methodology with those numbers generated under 14 the second methodology?

MR. PORRITT: Object to form.

I mean, I don't know what first, second, third, fourth, fifth, and sixth methodologies you are referring to.

MR. ALDEN: Don't --

MR. PORRITT: There are different methodologies --

MR. ALDEN: Don't -- don't take up my time, please --

(Undiscernible Cross-talk.)

MR. PORRITT: -- in this deposition.

Page 12

MR. ALDEN: -- or I'll have to move to compel additional time if you're going to make speaking objections.

MR. PORRITT: All right.

THE WITNESS: So when you say first methodology, I think you're referring to what we have called the quantum impact or impact quantum methodology in my recent report, I mentioned -- let me see. Let me look at my report.

On page 55, paragraph 163 of the report you referred to, November 8th, I said in general there are two ways to calculate the impact. One possibility is to calculate a unique but-for price and compare that to the transacted price.

That appears to correspond to the paragraph you just read.

The -- the report goes on to describe this impact quantum methodology which is somewhat longer. But, yes, I have proposed both of these methodologies. I consider them both reasonable, given that I think it was an emergency order or certainly a request with a tight deadline.

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Page 13 I didn't have time to do a comprehensive comparison. Certainly not under identical assumptions. So I don't think I've done what you would call a -- a comparison of these methods.

- (By Mr. Alden) Okay. Do you have any data or documents that reflect your comparison, however cursory it may have been?
- A. No, I don't have documents, except -- may I -- may I introduce my most recent report, the three-page report?
 - O. Sure.

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MR. ALDEN: Why don't we mark that as Exhibit 443. That's -- I had marked it as TSLA second supplemental report of Steven Heston.

(THEREUPON, Exhibit 443 was marked for identification.)

THE WITNESS: Yes. So in this report, I wanted to illustrate the implementation of this methodology. It's slightly confusing because in my November 8th report I said there are two ways and I first described a method but -- but I gave you're calling it the second method. Page 14

In any case, in this report, I have table 5, on page 5, an illustrative impact example. Yes. So on table 5, I perform an example which uses the same option, the same strike price and expiration, and I compute the -- the price impact under certain but-for assumptions for a call option and a put option.

Now, the -- the timing of the inputs and the values of the inputs are different from an illustration in my previous report. So it's not really a direct comparison or, if you will, a comparable comparison.

But your question was do I have any documents to do a comparison. This is as close as I have of documents that perform a comparison.

Q. (By Mr. Alden) Now, I'm going to refer to the methodology that you proposed in your November 2021 report as the first methodology.

The methodology proposed in Plaintiff's submission of revised proposed verdict form is the second methodology.

And the methodology you propose in

your supplemental report as the third methodology.

Now --

A. Wait, I'm confused about these different methodologies because I -- I'm only aware of two of them. 7

As I said in my report on paragraph 163, in general, there are two ways to calculate the impact and I've located two illustrations.

Well, there's a difference between the methodology proposed in the Plaintiff's submission of revised verdict form and in your 14 supplemental report in the sense that in the proposed verdict form, what you propose to do was -- was to calculate but-for prices using 17 actually -- actual reported implied volatilities, whereas in your supplemental report you propose but-for prices would be calculated using the implied volatility you calculate via straddles.

Is that correct?

A. I don't want to parse words too carefully but I want to competently answer your question. Page 16

MR. PORRITT: And to be clear, the second proposed methodology in the verdict form has since been withdrawn and is no longer being proposed by Plaintiff and is not addressed by you in the report. And the third proposed verdict form has, of course, been submitted, as counsel is aware.

MR. ALDEN: Again, I'll -- if you keep taking up my time, I'll have to force -- ask to have Professor Heston brought back again.

- Q. (By Mr. Alden) You can answer, Professor Heston. The question was straightforward.
- A. All right. When you talk about a methodology, a methodology would be a formula with certain inputs that produces certain outputs. I'm not providing the inputs to the formula. The important inputs are our but-for stock price and a but-for volatility.

Now, the -- the choice of this but-for input is up to the Court and it could be -- it could use quotes, it could use actual transactions and those transactions could be at

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the end of the day or during the day.

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So what you're talking about, I believe in your distinction, is whether I calculate a volatility from certain data -- an implied volatility from certain data or whether the CBOE calculates it from certain data but that's a matter of getting the data and determining the inside put. And I don't determine what those inputs are, I just say that this is the methodology that can take those inputs based on the Court's decision of what to use and then produce an impact based on that.

Q. (By Mr. Alden) But certainly you would agree with me that in the proposed verdict form, you propose that the input for calculating but-for option prices was CBOE reported -- was CBOE reported implied volatility whereas in your supplemental report you are proposing that it would be the implied volatility -- an implied volatility you calculate, correct?

MR. PORRITT: I'm going to object to form. That was the second proposal was not Professor Heston's proposal.

Page 18 THE WITNESS: Yeah. I would like to see the documents to reference, please, to understand. Because --

Q. (By Mr. Alden) Well, if we go back to Exhibit 4 42, which is the proposed verdict form?

A. Hold on, Exhibit 4 --

MR. PORRITT: We don't have a copy of that with us, so you're going to have to pull it up on the screen.

Q. (By Mr. Alden) And you go back to page 3 where we were looking at before, you see that it says this but-for price should be calculated using the but-for price of Tesla stock as determined bit jury at trial and the actual observed implied volatility as reported by the CBOE exchange on the date the option was transacted during the class period.

Do you see that?

A. Let -- let me be careful. I want to read this. All right. So, yes, this is not part of my expert report, so I'm not aware that I proposed it. If I read these words here, it says that plaintiff proposes that the damages be calculated using a but-for price based on

Page 19 the but-for price Tesla stock as determined by the jury at trial and the implied volatility reported by the CBOE. So this is a plaintiff proposal, not specifically part of my expert opinion.

- Okay. Now, are you aware that Dr. Hartzmark has submitted -- recently submitted a supplemental expert damages report?
- A. I -- I think I was told that he submitted a revised report.

MR. ALDEN: So why don't we mark as Exhibit 444 what I have called Hartzmark Tesla sup report.

(THEREUPON, Exhibit #444 was marked for identification.)

- Q. (By Mr. Alden) And Professor Heston, have you reviewed this document before?
 - Was there a question there? A.
- Yes. Have you reviewed Exhibit Q. 20 444 --
 - A. No. I have not.
 - O. -- before.

Thus I take it you had no role in preparing this document, including the appendix?

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A. That's right.

MR. ALDEN: Now, if we can mark as Exhibit 445 what I called Heston deposition Littleton examples.

(THEREUPON, Exhibit 445 was marked for identification.)

- Q. (By Mr. Alden) Professor Heston, I'll represent to you that what we've done in this Exhibit 445 is analyzed the named Plaintiff, Mr. Littleton's options trades and --
 - A. Analyzed what, please?
 - Mr. Littleton's option trades --0.
 - A. Yes.
- O. -- and derived estimated damages using your proposals and Dr. Hartzmark's implementations under each of the variations -the different methodologies that we've just discussed.

So the column entitled original methodology is a calculation of damages for Mr. Littleton's option trades under the methodology you propose in your November 8th, 2021 report.

The column second methodology refers to the methodology that Plaintiff proposed in

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Exhibit 442, the verdict form proposed submission -- Plaintiff's submission of revised proposed verdict form.

And the third methodology refers to the methodology you have proposed in your second supplemental report.

And what we're looking at -- and, you know, if you want to quibble with the way that we've characterized the different approaches, that's fine.

But what we've attempted to do here is to show that under each methodology or each approach, in fact, Mr. Littleton has different options which are damaged, and so -- for which they show damages.

And so, for example, on this first page, these are trades for which -- that Mr. Littleton engaged in that, in fact, showed damages under your original methodology but do not show any damages under the second and third methodologies.

Do you have any reason to disagree with this analysis?

A. Do I have reasons to disagree? Is that the question?

Q. Yes.

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A. Yes, I have a few.

I think you said that the third methodology is the one I proposed in my supplemental report, but I believe you're using the -- the Plaintiff's proposal as we earlier discussed.

But the point is you have three columns which you call damages. And I don't have an expert opinion on -- on legal damages. I have an expert opinion on how to calculate the impact of information on -- or of but-for assumptions about the stock pricing volatility on options. So I presume that what you call damages refers to this price impact.

And you have three columns which you've labeled different types of methodologies. And I want to emphasize the distinction between a methodology or a formula, a procedure, and inputs.

So in order to come out with an apples to apples comparison, you have to use comparable inputs to the -- to different methodologies.

And I am concerned that, one, I

don't see all the inputs, but, two, I know that in the illustrations, for reasons I can address, the inputs were not comparable. So if you use different inputs, you get different outputs. And you should get different outputs even with an assumed methodology.

And, finally, you said something produces damages. I see positives and negatives, although some of them are small, so depending on whether somebody was a buyer of an option or a seller of an option, one might or might not interpret these as damages.

Q. Well, would you -- would you expect that damages under your original methodology or methodology you proposed in your report would be the same or similar as damages one would get from implementing the methodology proposed in your second supplemental report?

A. I would say that the two methodologies I proposed are both reasonable, and given comparable inputs, would produce reasonably similar numbers. And I would have to explain what reasonable means.

Q. What do you think reasonable means?

A. I think reasonableness has to be

Page 24 the

judged within the problem of determining the impact on prices across a wide range of options, in this case, and in terms of the magnitudes, compared to the magnitudes of movements, for example, in the stock.

And I'm going to refer back to my short report of December 27th which uses a stock price of on August 8th at 9:34, the actual Tesla stock price of 372.95 and considers a but-for stock price of \$305.50, which I believe is within the range of previously-traded Tesla stock.

So the stock had a swing on the order of 60 or \$70. An option represents a lever debt on the stock so you put very little money down on an option to have a large risk or hedge a large risk.

But the amount of movement we're talking about here is on the order of 60 or \$70 and the stock price is 3 or \$400. So if we look at the discrepancies in your calculations, we want to compare those discrepancies to the magnitudes of 60 or \$70 changes in a 3 or \$400 stock price.

Q. Well, looking at the spreadsheet

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Page 25 here, we see that under the original methodology, Mr. Littleton had approximately \$2500 in damages under the second supplemental reports methodology, he now has no damages to this particular -- this first particular option trade.

- I'm -- I'm sorry. Are awe certificating this or is this from Hartzmark report -- report? What is the source of these calculations?
- These calculations are based on implementing Professor Hartzmark's reports?

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MR. PORRITT: So the Defendants calculations just to be clear.

THE WITNESS: Yeah. Okay. May I see the -- the inputs to those calculations in order to opine on why they are different or how much they are different?

- 19 Q. (By Mr. Alden) Well, what about 20 this, if we provide you with the inputs, will you tell us before trial if you believe we've 22 implemented them incorrectly?
 - A. Well, I can try and replicate these calculations but in order to answer your question about why these numbers are different

or how much they are different, I would need to see the inputs to the calculations and then I could try and explain how the inputs affected the outputs. But I can't say that -- that if you put unknown inputs into two different formulas, that the difference is meaningful or interpretative for you.

- Q. Well, let's -- I'm asking you to assume that we correctly applied your original methodology and the methodology that is then -you then proposed in your second supplemental report. Would you consider a change whereby Mr. Littleton was damaged by \$2500 to no longer being damaged at all to be a reasonable difference?
- A. Okay. I think there were two questions there, so let me parse this.

One is sort of assuming you did the -- did the correctly, would I consider it, and correct depends on the question you are asking and the inputs you used. So you could push buttons on a calculator correctly but if you were using inputs that were not comparable, then the answers aren't going to be comparable. ²⁵ So I would need to see if the inputs you are

Page 27 using are appropriate in the two formas. For example, if they are prices, are those prices taken at the same time of the day. If you use a morning price and an afternoon price for two different formulas then the formas might be different because the inside puts are different. That might be a correct answer to a different question.

So that's the first question you asked. And the second question is I believe could the damages switch from positive to negative with -- between two methods and the answer is, yes, if the damages are reasonably small, then reasonable differences and assumptions for methodology could change them enough to flip them across zero.

O. Do you think a change from 2500 to -- positive 2500 to negative 465 is a small change?

MR. PORRITT: Object to form. THE WITNESS: Well, let's -- okay. So is -- all right. Going from two and a half thousands to negative 500. So let me look here. So the original methodology -all right. So we have either prices or

Page 28 fitted prices and we are subtracting off but-for prices. And one case getting a positive and under your column third methodology -- columns second and third methodology getting a negative. While this appears to be on 19 contracts, is that correct?

Q. Correct.

- A. Okay. So I'm going to divide it by 19. So 2500 divided by 19 I'm going to conservatively call that 100 or 140 and is this per option or have you multiplied by 100 to get it per contract.
- Q. I believe it is 19 by the contract -- by the price of 1290?
- A. All right. So -- so anyway, if you divide by 19, it's more like 140. And \$100 and change and you take that 465 divided by 19 and it's -- it's, I don't know what is it 30, \$40? ²⁰ I -- my iPhone is turned off. I don't think you want me to bring out a calculator here. So I'm going to scale that to be per stock price. ²³ In the stock price itself fluctuated by 60 or \$70 under my but-for assumptions I don't know how much it fluctuated under your but-for

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Page 29 assumptions because you haven't shared them with me, but so that makes it difficult to address.

- O. Using the but-for stock price that Dr. Hartzmark used?
- A. Oh, I don't know what but-for stock price Dr. Hartzmark used.
- Q. Well, look, let's move on. It seems like you're unwilling to tell me that a swing from \$2500 to negative 500 is significant so we'll just move on?

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MR. PORRITT: Object to form. That's an unfair characterization. You presented him with data on an analysis that he didn't do and asked him to comment on

MR. ALDEN: I'm asking him to comment on the difference between two numbers in the context of the damages methodology he's proposed. And he can't tell me -- I mean, if he wants to tell me now, Professor, tell me. Do you think --

MR. PORRITT: He provided examples. MR. ALDEN: Can I finish my question, please?

Page 30 Q. (By Mr. Alden) Professor, do you think the difference between \$2,500 in damages and negative \$500 in damages for trades in a particular option at a particular time by Mr. Littleton is a significant difference?

MR. PORRITT: I'm going to object to form. I don't think that's what it shows either.

THE WITNESS: Again, I will point out -- you said significant. I'm here to opine on what is reasonable, are they -are things reasonably different or not.

But anyway, we're talking about 19 contracts here on a stock price I -- I really don't know what stock price you used, but say it's on the order of \$400, so 19 times 400 is about 8.000.

So if we're talking about an \$8,000 stock price with large fluctuations, options can be very sensitive. So I don't -- I don't view this as, without going into it, I don't automatically view that as unreasonable.

(Court reporter interruption for technical issue.)

TECHNICIAN: Going back on the record at 3:41 p.m.

- Q. (By Mr. Alden) Professor Heston, you agree that given option prices can change for all sorts of reasons, whether someone is awarded damages in this case and the amount shouldn't depend on the particular price within the bid-ask spread that they happen to trade at, right?
- A. Your question is do I agree with something about damages based on the price they paid within the bid-ask spread.

First, that assumes that the price they paid was within the bid-ask spread or that there even was a bid-ask quotation, right, in the fast moving markets prices can appear outside the previous bid-ask spread when a quote isn't updated.

But I don't have an opinion on the legal definition of damages or the inputs. I -- I have an opinion about the impact of the stock pricing volatility on option values or option prices and if two people pay different prices when they should have paid a but-for price or if two people sold at different prices

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Page: 8 (29 - 32)

when they should have received a but-for price, then those two people would experience different impact in terms of the difference between what they paid and what they should have paid or what they received and what they should have received.

- Q. How -- how did you --
- So I don't think I agree.
- Q. How does your third methodology -second methodology account for the existence of a bid-ask spread?
- A. My second methodology uses the transaction price which is the amount investor paid or received for an option and I believe --I did this because I believe it was agreed to by counsel and requested by the judge.

And it uses the actual price paid by a customer or received by a customer. And it subtracts off a but-for price which is calculated using Black-Scholes model using two inputs. Those two inputs would be a but-for stock price and a but-for volatility.

In the -- the decision about the appropriate but-for stock price and but-for volatility which will be performed by the Court

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Page 33 or by a jury, they might use an average of bid-ask quotes or some other number which they will decide and I will merely use those as inputs.

So I am not directly using bid-ask spreads or bid-ask quotes.

Q. Okay. But are you proposing any way for your -- in the implementation of your methodology are you proposing any way for the Court or the jury to account for the bid-ask spread?

MR. PORRITT: Object to form. Asked and answered.

THE WITNESS: I don't think I'm proposing how the jury should determine the -- the appropriate but-for stock price or but-for volatility. They might be informed by bid-ask quotes or they might be informed by actual transactions or an end-of-day settlement price.

I'm proposing methodology to use those numbers as inputs for the but-for calculation and I've described the methodology of using the transacted price which does not involve a bid-ask spread

directly.

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Q. (By Mr. Alden) Okay. And but the estimates that would be derived from implementing your methodology will be impacted by the bid-ask spread applying to the transactions, correct?

MR. PORRITT: Object to form. What estimates are you referring to, Anthony?

MR. ALDEN: That's one of the -- one of the -- well, let me start again.

- 12 Q. (By Mr. Alden) One of the reasons 13 that you proposed your original methodology was spread, correct?
 - A. There were multiple reasons. And one of the reasons was that it -- if I wanted to have tables or estimates of option values at different times of the day, I would need some way of condensing that information.

The alternative, which I believe has been agreed to by counsel, was to actually dig up the transaction prices or have the impacted members of the class mail their brokerage statements showing the particular price which would be different for each customer on each

transaction.

So when you ask whether my methodology is affected or uses the bid-ask spread for the actual price, it does not directly use the bid-ask spread. It is the case that market quotations might affect the price customer pays or receives, so in that sense the bid-ask spread might affect where a customer trades.

10 But to my methodology will use the price customer paid or received which involves no calculation on my part and the but-for calculation, which I will perform, that uses an input to be determined by the Court of a but-for stock price and but-for volatility.

16 Q. Now, in calculating but-for option prices, Dr. Hartzmark uses the implied 18 volatility you calculated just before Mr. Musk's tweet at 12:48 p.m. Eastern on August 7th and the implied volatility you calculated for August 17, 2018, the end of the class period.

> Do you recall that? MR. PORRITT: Object to form. THE WITNESS: I believe that

Page 36

Hartzmark did perform illustrations using these volatility calculations of the general sort you describe.

(By Mr. Alden) Okay. And the theory is that but for Mr. Musk's tweet, the implied volatilities for Tesla options would have been the same as they were just before the tweet or after the purportedly corrected information came out during the class period, right?

MR. PORRITT: Object to form. THE WITNESS: That's not my opinion but, yes, Hartzmark, I believe, is expressing an opinion to the Court that a good benchmark for the but-for calculations would use the volatilities observed pretweet and -- and those volatility calculations would be an input to that, ves.

(By Mr. Alden) And you would agree that a reasonable damages methodology then would assign no damages to trades occurring before the allegedly misleading tweet or for trades occurring after the end of the class ²⁵ period.

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Page 37 Would you agree with that? MR. PORRITT: I'm going to object to form.

THE WITNESS: All right. I'm not a lawyer and I don't understand certification of a class period. My cursory understanding is that the Court has restricted damages to one's that were experienced during the class period.

So whether or not someone was damaged after the class period, I don't think is under consideration by the Court. But, again, I don't have an expert opinion about legal details or confining damages to any specific period.

- 16 Q. (By Mr. Alden) Well, certainly, we can agree that Mr. Musk's August 7th tweet 18 would not have caused damages before the tweet was issued, correct?
 - A. Well, all right, if an investor bought and sold the stock -- both bought and sold the stock before Elon Musk ever tweeted, presumably the investor would not have been hurt by that tweet. I think I can agree with that.
 - Page 38 Q. And so would you consider it to be strange if Dr. Hartzmark's implementation of your methodology in fact showed damages arising from Mr. Musk's tweet before he actually tweeted?

MR. PORRITT: I'm going to object to form.

THE WITNESS: I guess this is a hypothetical and I haven't -- this is -this is extremely hypothetical. If someone bought at a price before the tweet let's say one year before the tweet presumably it might -- it would have been very different from stock prices just before the tweet and the price could be very different. It would not be appropriate to apply the methodology to prices that were affected by many other factors and assume that they were not affected by those factors.

So Tesla stock price was very different a year before the tweet and I don't think would be appropriate, even though I don't have expert opinions about which information goes into the stock price or option prices, it would seem rather

Page 39 obvious that if we're not talking about trades around this period, that it would be inappropriate to apply my methodology using those actual transaction prices.

- Q. (By Mr. Alden) If two investors bought options -- the same option at the same time during the class period, one at the bid and one at the ask, they would have different damages under your latest methodology, correct?
- A. Yes, under the methodology in my December 27th report, the impact is calculated as the difference between the but-for price and the transaction price to the customer.

Now, we have to be careful about this at the same time without getting into -into the physics of time. It's rare that two trades would have the same time stamp and even if they do, it's possible that trades were made at slightly different times and then reported a few seconds later.

So I -- I think it's hard to -- for me in this hypothetical to even be comfortable with two customers trading at the same time, especially in markets that move very quickly.

And the specific example I want to

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- give you is sometimes an order gets split where a customer might negotiate half of the order trades at one price and half at another or a customer might submit a large order that blows through the limit book. So there could be preexisting limit orders to sell for \$345 and another batch at 346 and another batch at 347 and the large buy order would some get executed at 345 limit, some at 346 and some at 347. Those would all be reported at the same time, but, of course, it's by the same customer and it -- it -- in that case, we care about the average price the customer paid.
- Q. (By Mr. Alden) Given that option prices change throughout the day each day of the class period, do you think it's appropriate to use the same but-for price -- apply the same but-for price throughout the entire day?
- Yes, that's a reasonable thing to do.
 - Q. Why is that?
- Of course, I don't have an expert opinion on the appropriate but-for inputs. But the appropriate but-for inputs will be decided by a court, by a jury hopefully in 2023 with

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the advantage of hindsight.

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The legal theory of damages is based on information that affected the stock price that was wrong or fraudulent or somehow had an impact on the stock price.

And investors throughout the day were processing this information potentially erroneously believing the tweets and then becoming more skeptical. And the jury today can see the actual stock price movement to the end of the class period, they can see the -any newspaper articles or subsequent tweets, they can see the clarification by Tesla's industrial relations department or lack of clarification. So in hindsight they have more information about the but-for price which does not change.

The jury isn't -- isn't changing the but-for price intraday. They -- they know what happened by the end of the class period and they have -- they can form an opinion or utilize an expert opinion on the appropriate but-for price that would have prevailed if all that information had been appropriately processed instead of the tweet.

Q. Well, as information comes out, doesn't that affect option prices as the information is released?

A. Information primarily affects option prices through the stock price and through the implied volatility. So to the extent that the information affects those variables, it would affect options and that is why my methodologies have always required a finder of fact who is not me to determine what those inputs are.

- Q. Right. And that information would have an effect on stock prices fairly soon after the information came out, correct?
- That they would include how the information came out? I'm not sure what that means, really.
- Q. Well, now, I want to ask you the volatility of an option with a certain maturity that was actually traded during the class period will vary by strike price, correct?
 - What will vary?
 - The -- the volatility.
- Are you talking about the implied volatility from the Black-Scholes formula.
 - Q. No, I'm talking about the observed

volatility?

The observed volatility? Well, of course, one doesn't really observe volatility. One can see a fluctuation but in order to estimate volatility, you would have to do a statistical break down of multiple changes because volatility is a measure of the size of changes, the variability.

And so, no, you don't really see volatility at a point in time, you see a bunch of stock price movements and then you -- you look at the average squared change, the calculated variance or volatility over a period of time, not at a specific time.

Why didn't you account for or allow differences across strike prices when you calculated implied volatilities that Dr. Hartzmark plugs into a Black-Scholes model?

MR. PORRITT: I'm going to object to form.

THE WITNESS: Well, why didn't I? I -- I used the Black-Scholes formula which has -- it has five inputs. Two of those inputs are contractual, namely, the expiration and the strike price. And one

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of the inputs is the interest rate, which is not very controversial. And the option is not sensitive to the interest rate, generally.

So the -- the remaining two inputs are the stock price and the volatility. And in the Black-Scholes model the stock price and the volatility are the same for all options of a given expiration.

- Q. But you could have calculated in a different way such that implied volatility would have changed with strike price, correct?
- You say I could have calculated? I -- I'm capable of lots of calculations but the Black-Scholes model -- the 16 Black-Scholes-Merton model does not really have those calculations.

Now, your expert has done such calculations and it is -- the Black-Scholes model is so ubiquitous in the finance industry that instead of quoting option prices it's common to quote option values in terms of the implied volatility that that is to invert the formula and say what input gives you a desired output. So this is common quotation mechanism.

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Page 45 But the Black-Scholes model uses a single volatility across strike prices.

Q. Now, how does your latest methodology address biases in levels of the Black-Scholes model?

MR. PORRITT: Object to form. Again this is beyond the scope of the supplemental report, but you can...

THE WITNESS: Yeah, so which biases are you -- I mean, there -- all models are idealizations or simplifications, so what specifically are you talking about?

(By Mr. Alden) Well, in your expert report you say that your quantum impact methodology allows me to difference out potential model fitting biases in the levels.

How did you do that in your latest methodology?

A. All right. This -- I think the judges what would call the out of pocket methodology. This -- let's see. How does addresses biases? It would be better for me to rephrase that question and say how does this methodology contrast with the quantum impact methodology.

O. Could you answer the question I asked, please?

MR. PORRITT: If he can.

THE WITNESS: Well, the question is going to be how does it address biases when address and bias are fairly broad terms.

- (By Mr. Alden) I'm using the terms as you used them in your original report.
- A. It -- it does not difference but-for price across two different days, the but-for or fitted price. So in that sense, it -- it uses two slightly different procedures because -now, in the but-for world, we don't see an actual transaction. That's why we call it but-for. It's hypothetical or counterfactual. It will be determined by a jury or a court.

So we -- it's not possible to use a but-for transaction because we don't observe such transactions. Instead, it uses the transaction price which allows us to be more accurate in terms of timing and the specific market conditions prevailing when the option is traded. So it makes a different decision as to the input which requires no calculation for me to -- and removes any discretion that I would

Page 47 have about which model to use or how to calibrate the model.

O. So did you do anything to address model fitting biases in your latest methodology?

MR. PORRITT: Object to form. THE WITNESS: When using -- well, when using a transaction price, there is no model and there's no bias in terms of my ability to influence the calibration so I do nothing, not even a calculation. I just take the -- the transaction price which presumably will come off of a brokerage statement or some sort of market report.

- 15 (By Mr. Alden) What model is used 16 to generate the but-for price isn't it? That's what the Black-Scholes model is used to do?
 - Yeah, so --
 - So when using the Black-Scholes Q. model in that way, how do you address model fitting biases?
- 22 A. I use the Black-Scholes model. So and if the Black-Scholes model -- if you don't 24 accept the Black-Scholes model, then -- well, then you don't accept it.

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Q. But that model has biases, you agree?

A. Well, as I said, all models have biases. I think the quote I used in the last deposition was all models are wrong but some are useful.

MR. ALDEN: If we could mark as Exhibit 446 Hartzmark inflation estimates. (THEREUPON, Exhibit # was marked for identification.)

- Q. (By Mr. Alden) Now, Professor Heston, what we've done here is graph Dr. Hartzmark's inflation estimates for August 8, 2008 for an option with the January 2020 expiry?
- Wait, you say you've done this. I see the cover page. I can try to -- I'm not --I -- okay. Okay. Now, I see it. I see a graph.
- All right. Now, would you 21 characterize these lines -- these changes as 22 monotonic or nonmonotonic?
 - Well be I'm not sure what these A. issues nubs are.
 - O. These numbers are Dr. Heston's --

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Page 50

Page 49 Dr. Hartzmark's estimates of inflation and deflation for August 8, 2016, for an option with a January 2020 expiry graphed per strike price?

Well, I see two lines on there. I A. see an orange one which says call inflation and a gray one which says put inflation. And those curves, you know, there's a -- no, they don't look monotonic.

O. Okay.

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Okay. I need to be careful and say that monotonic as a function of your independent axis, which I'm guessing is strike price, they may or may not be monotonic in other variables.

So I -- I'm not sure exactly what this is or how it was calculated, but I see the orange graph go down and curve back up on the right and that doesn't look monotonic.

MR. ALDEN: How long have we been going for?

MR. PORRITT: Court reporter or videographer, what's the time on the record?

TECHNICIAN: Yes, give me one

second. Should we go off the record?

MR. ALDEN: Sure.

MR. PORRITT: Sure.

TECHNICIAN: Going off the record at 4:07 p.m.

(THEREUPON, an off-the-record discussion occurred.)

TECHNICIAN: Going back on the record at 4:08 p.m.

- Q. (By Mr. Alden) Professor Heston, if a person believed that Mr. Musk was going to take Tesla private at \$420 per share, would it make sense for them to buy a call option with a strike price of \$600 or more?
- You're asking me if someone believed that Tesla would be taken private at 420 would it make sense for them to buy a call option with a strike of 600?

Well, I guess it -- first of all, it depends on what else is in the portfolio. For example, they might be short one or more call options for the strike price of 600 and this might reduce the risk.

They might also expect that the market has undervalued these options and,

Page 51 therefore, they -- they might want to buy them. You can buy an overvalued security and sell it when it's even more overvalued at a profit.

They might, for example, buy this option and sell shares of stock which is known as delta hedging.

This might be a bet on the compliant volatility. Or if I want to make it really simple, they might believe that there's going to be a takeover battle and that the initial offer at 420 will be sweetened and go up to 520 and then 620.

So I can't really speak for all investors and all motivations but I can concoct a number of scenarios in which they might.

- Q. Have -- since your last deposition, how much in total have you been compensated for your work in this case?
- When was the last deposition, please?
 - Q. I believe it was in March.
- 22 A. Last March? So, mercifully, so my work slowed down in March and I was able to -to teach and -- and have a family life. But it would be on the order of 100 or so hours

intermittently, since March.

Q. Do you have a sense of how much in total you've been paid to date?

A. I have not calculated it, but it -but it's -- but, anyway, since March, \$700 per hour times 100 hours would be 70,000. If it's 200 hours, that would be 140,000. And before that, of course it was a multiple.

- Q. So fair to say -- I believe you last testified it was about a quarter of a million dollars. Fair to say it's now at roughly 300 to \$350,000?
- A. Yes, I haven't done a meticulous counting or accumulation, but that's certainly ballpark.
- Q. And why in terms of -- do you know why it -- well, strike that.

As -- as between your original methodology and your latest methodology, which is more likely to produce accurate damages numbers?

Which is more likely to produce accurate damages is going to depend on the exact application. And the accuracy of the output depends on the accuracy of the input.

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assumptions.

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So there are -- there are pros and cons that they may have greater or lesser accuracy for specific applications and they may be easier or harder for a jury to use to determine accurate inputs.

- Q. If one assumes that they are being -- that your methodologies would be implemented as Dr. Hartzmark proposes to implement them, do you have an opinion as to which is likely to generate more accurate damages numbers?
- A. Let me -- I think they're both reasonable. I will contrast these two methods for you. The -- the first method I proposed, the quantum impact or impact quantum method, that requires sort of fitting on the trade date and the termination of but-for values.

So that, in a certain sense, requires a calculation for the first price as well as a calculation for the but-for price.

There -- so there's a potential disadvantage there that -- and let me see, the second method of using the actual transaction price doesn't require any calculation when you use the actual price.

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So in a certain sense, the second one is more transparent and requires less calculation. The second method also has the advantage of easily pinpointing the time.

We don't have to use end of day or hourly or even minute by minute. We can use the time -- the exact time of the transaction because we, in fact, used the transaction. Even if there's an error in the timestamp, we have the actual price the customer paid.

To the extent that there's some bid-ask bounce or movement, that is due to liquidity error. For example, a broker who pays high commissions to a full service broker might get better execution and get a slightly favorable price.

So there is a little bit of microstructure noise. And the advantage of a smooth fitting model is that it potentially smooths things out if the customer got a particularly bad price.

So there are trade-offs between any tools or any models and these two methods have their advantages and disadvantages.

Q. But presumably, you thought your

initial model is more reliable, given that that's the one you proposed initially?

A. When you say reliable, I'll talk about what I mean. That I wanted to give you examples in the report to show how it would be implemented, so I constructed tables of implied volatilities using end-of-day data.

And if you wanted to implement it on a daily basis, you could use, literally, those tables if those are your but-for assumptions, or I could perform analogous calculations intraday if you wanted that.

I don't have an opinion about what the appropriate but-for information should be, whether it should be based on end of day or intraday. That seems like an easier one in terms of informational requirements.

But if -- but I understand that -- that the Defendant's counsel, meaning you, had concerns about that procedure and the judge requested preparation of a report which used the out-of-pocket methodology using the actual transacted price.

I think that's very transparent for a jury to say, look, we take the price somebody

paid for an option and we, under our but-for assumptions, the professor calculates -- or someone appointed by the Court calculates Black-Scholes value and if they bought at one price when they should have bought at a different price, we subtract the two to find out the impact of our alternative but-for

So I think that that one is easier for a jury to understand and if we're willing to organize all the data on the actual transacted prices, it's feasible so that that has merits.

I like complicated, sophisticated option models, so I have a mild preference for the first method because I use a parallel procedure on what we call the actual and the fitted. I do the same thing twice. And all we're changing are the -- the inputs as chosen by the -- the Court.

But I don't have a strong preference and I believe that my report pointed out that Seru's report used the Black-Scholes formula in a somewhat different implementation and calibration.

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Page: 14 (53 - 56)

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Page 57 And I would have to introduce them as exhibits, but if we look at the graph damages in Seru's report and the graphs in mine, the overall pattern in magnitudes very are similar in strike price.

So I think that all these methodologies are broadly similar, especially for the heavily traded options near the money. And I don't have a strong preference for methodology. What's important to me is that we have a consistent method of implementing financial engineering to give, you know, a reasonable and coherent set of damages or impacts for the Court.

- Q. Well, what kind of impact -- what magnitude of impact do you think market noise will have on damages estimates generated --
 - A. Can you speak louder, please?
 - Yeah.

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What impact will market noise have on damages estimates derived using your latest methodology?

A. Well, when you say market noise, that could be bad execution. There might be a quickly-moving market where someone gets a Page 58

stale price.

So if -- so suppose somebody is lazy and wants to save on commissions but gets a bad execution price, well, some of the harm they've suffered is due to their own negligence, their own thrift, on the price they paid.

But that's of the -- that's of the order of the bid-ask spread or half the bid-ask spread. And it's not -- it doesn't affect all the options. A lot of customers might have received very similar prices based at different times.

I was also concerned about having to do some fitting intraday which it appears we don't need to do at all with the -- the actual out-of-pocket transaction price. So if I don't have to fit every hour every minute, if we just have to take the transaction price, that's not a problem.

But the magnitude of the what I call microstructure noise is on the order of half the bid-ask spread, and it's not unreasonable compared to the impact or price fluctuations experienced by many options investors.

O. Certainly, you would agree that an

Page 59 option investor during the class period shouldn't be compensated for that -- their own negligence or that market noise, correct?

MR. PORRITT: I'm going to object to form. And it's beyond the scope of his second supplemental report and the scope of this deposition as ordered by the Court.

THE WITNESS: Yeah.

That's a rather general statement. I would interpret that as saying that it's -- it's not reasonable to compensate them for things that are outside the model. And I think my response is that just as all models are imperfect, the inputs are imperfect. And we have to look at a reasonable application.

So I -- in this case, I trust the jury to use transaction prices as a reasonable measure of what someone paid and should have paid at the time.

They are using licensed professional brokers to execute the trades, and while there may be minimal differences in -- in the competence or aggressiveness of a broker, the prices paid largely reflect the

Page 60

prices that should have been paid at the time.

And I think that that's a reasonable implementation of the model to calculate impact.

- (By Mr. Alden) Okay. And it's your understanding that the model will be implemented using the actual transaction prices paid by each individual class member for each of their trades?
- A. I'm not sure I got the beginning. You said is it my understanding...
- Is that your latest methodology will be inputted -- will be implemented by plugging -- by using the actual transaction prices paid by class members for their individual transactions.
- Yes, that -- yes, they would use the actual price the customer paid or received.
- Since your last deposition, have you been retained as an expert in any other cases?
- Since my last -- have I updated what, please?
- Q. Since your last deposition, have you been retained as an expert in any other cases?

DC	position of Steven Heston, vol. ii Rough Diait		in Re Tesia, inc. Securities Enagation
1	A. Yes, I have. Since in March.	1	MR. PORRITT: Yeah, we can provide
2	I I don't know if it was no, I continued	2	it. We'll we'll look into it. Sorry.
3	on another case, but I don't I have not been	3	I don't have it. I have his report but I
4	retained on additional cases.	4	don't have the resume, so I apologize for
5	Q. What other case is that that you	5	that. Otherwise, we could clear it up now.
6	referred to?	6	
7		7	So, yeah, we'll look into it and we'll get
8	A. It it's a case involving futures.	8	back to you.
9	Q. Okay. Is it a court case or an arbitration?	9	MR. ALDEN: Okay. All right. I am conscious of the Court's order and so I'll
10		10	
11	A. It has not gone to court. And as	11	thank you for your time, Professor Heston.
12	you know, I dillik it's difficult even for	12	THE WITNESS: You're welcome.
13	attorneys to predict whether things will go to	13	TECHNICIAN: We are now off the
	court. So it has not gone to court yet,	14	record at 4:25 p.m.
14	although it inight.		(The deposition concluded at 4:25
15	Q. Tou ie you ie consuming in mat	15	p.m.)
16	case:	16	
17	A. 1 yes, I was retained to provide	17	
18	an expert opinion and report on futures in that	18	
19	case.	19	
20	Q. And are you at moenty to ten me	20	
21	the substance of your opinion in that case?	21	
22	MR. PORRITT: Object to form.	22	
23		23	
24	just calculating the damages of trading	24	
25	futures at one price or one quantity	25	
1	Page 62		
2	instead of another.		
3	Q. (by Mr. Aldell) Alid suffice it to		
4	say you haven't your report in that case		
5	hasn't been publicly disclosed and you haven't		
6	offered testimony?		
7	A. It I I have been deposed.		
8	Q. You have been deposed in that case?		
	A. Yes.		
9	Q. Okay. And who are the parties to		
10	that case?		
11	A. I would I would have to get back		
12	to you for the exact spennig and		
13	Q. Is that engagement reflected in your		
14	expert report in the appendix to your expert		
15	report? Do you know?		
16	A. What about the appendix to my expert		
17	report?		
18	Q. Is that engagement reflected in the		
19	appendix to your expert report?		
20	A. I I don't know. I would have to		
21	look at it.		
22	Q. Okay.		
23	MR. ALDEN: I'd ask counsel to check		
24	into that and provide us with the name of		
2 -	1	1 1	